The Builder.

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On the Principles of Proportion as Common to both Gothic and Classic Architecture.

IN general principles it would appear to be fairly assumable that the Gothic and the Classic styles, being both architectural, must have common dependence up to a certain point upon identical principles common to all architecture; and if this is the case both styles should prove susceptible of common furtherance as these principles become better understood, their applications and developments subjected to more masterly control. Upon this ground, so far as its just range extends, neither one school nor the other can arrogate an exclusive nor even a prior right. Here both alike are in a stage of pupillage, and it is at a subsequent stage that the privileges of independent option, and even of individual caprice, fairly accrue. There are certain conditions of propriety and dignity in a door or window opening that must be acknowledged in the first instance whether the head be pointed or horizontal. Such common conditions are general indeed, but therefore it is that they are so universal; and therefore it is, that they demand the earliest as well as most unremitting recognition. After the common constructive obligations, it is in allegiance to Proportion, that architectural styles most importantly inosculate. It is by peculiarity of proportion no doubt that one style becomes so strongly contrasted with the other, but this is no more than an extreme case of the same principle of modulation, by which all but limitless variety is developed by modified proportions within the conditions of the single style.

The subject of Proportion as an element of design has occupied more or less of the attention of all the important writers on architecture. Even those who have devoted to it the fewest pages have marked emphatically their sense of the influence it exercises,—the dignity of its claims; of those who have treated of these more in detail, it may, perhaps, be said that the most successful have been the readiest to admit the incompleteness of their results, whether relatively to ideal theory, or even to the fund of principles which seem to have been within the grasp of architects who have left no works other than architectural.

One of the best introductions to remarks upon the subject in itself, may be a critical survey of the conclusions of a recent writer, and we choose the article on Proportion in the Dictionary of French architecture, by M. Viollet-le-Duc. If the confutation of an erroneous system were but the establishment of a true, how many controversies would have long ago sunk to rest! But, alas! systems may conflict, and yet neither be correct, just as vessels may come into collision, and both be sunk. There is good service to be done, nevertheless, in buoying the wrecks, and so securing a happier voyage for future adventurers. We freely concede, therefore, to the writer that M. Quatremère de Quincy cannot be safely followed in his view, that a true system of proportion would establish such an absolute reciprocal dependence of principal parts, of subordinate and of the smallest subdivisions, that given a particular instance of relation, the proportions not only of the parts but of the whole would at once be deducible. Beauty is not thus to be produced by receipt, and the enigma of sublimity is not to be solved by overhearing a catch-word.

Doubtless when we contemplate a truly harmonious work we recognise an affinity between all members, and even parts of members, and the whole; the foot of Hercules affects us with a sense of congruity in its forms with the hand of the hero, and both with the general muscula. ture of body and limbs. It is even possible that by careful study we may work our way to some leading principle by which the congruity was brought about, or a special application of such a principle; but the genius of the artist invented the principle as well as effected its application. A key-note governs a symphony,—its harmonic relations may be as well known to us as to the composer,—but neither the key-note nor the very theme itself would ever have helped any but the gifted musician to his symphony.

The setting of a palette is no unimportant part of a painter's day; but, after it is set, it will be of little avail for any pencil but his own.

It were but a weak retort that if the theory of proportion is not useful to the extent of enabling us to evolve beautifully proportioned structures, it may at once be set aside as worthless of study. Not on such view proceeds the melodist as he applies laboriously to the recondite mathematics of his art,—not so the executant who practises unwearied scales,—not so the painter observant and experimentative without ceasing of the effects of colours upon each other in every variety of mixture, and purity, and tone.

It is always a nice question how nearly theory may be pressed forward upon practice, and the relation of proportion to architecture is no exception. Up to a certain point, the development may be said to be purely scientific and remarkably precise; beyond that line there is little more to be established than a limited code of general maxims,—limited, indeed, and general, and yet the grand results of the intellectual inquiry. The next function is for inventive imagination to devise for ever-variable contingencies, those combinations of elementary principles in subordination to the general, that constitute happy and beautiful solutions.

When we come to analyse a complete and successful work, it is of the utmost importance to recognise the distinction indicated;—it is much the same that obtains in grammar between etymology and syntax. We may easily mistake what is but scaffolding for the building if we are content but to note by aid of what lines and centres work was set out, and fail to observe the broad contrasts to which these details were subservient. There is, therefore, indeed, a preliminary inquiry as to what scale the artist employed; and even this we are at liberty to criticise as possibly but a makeshift; but let it have what excellence it may, the far more important question arises afterwards as to the principle and the success of his application of it.

Natural taste is sometimes ahead of scientific culture, and snatches a grace that it would not have ventured to justify, knowing not that it was justifiable; and at other times it pays the penalty exacted from ignorance by missing, in its awe of the established rule, a beauty fairly within grasp.

An exacter analysis of the design of Classic architecture has brought out the result that the Greek architect set great value upon his dimensions being simple in their relative proportions, and those executed with the nicest exactness; and it has, moreover, appeared that the lines which he held of most importance to be brought into proportional dependence, were the vertical and the horizontal; that is to say, to the apprehension of the Greek the architectural eye was inevitably disposed to appreciate heights upon the plumb-line, with reference to the several breadths most intimately connected with them, and *vice versâ*. The influences that predispose to such dominant comparisons lie deep in nature, and are within us and around us at every moment. Every movement we make strengthens our personal experience of the dependence of stability and equilibrium or balance upon the lateral distribution of mass with reference to the vertical, and the satisfaction of the sense of security in these respects is the primary condition of architectural effect. Again, the convenience of every distribution of plan or opening, and the requirements that they make upon us for movement or use are naturally estimated by dimensions taken upon the vertical and horizontal lines, and to extent of divergence upon lines at right angles to each other.

When we look at the proprieties of the case thus broadly, it would seem that up to this point architectural principle is—

> "Whole as the marble, solid as the rock,
> As broad and general as the casing air,"—

and that to this primary rule architecture, as architecture, must render allegiance until such time as it shall be called upon to satisfy tastes and habits in a new condition, where the all-regulating plumb-line ceases to be at right angles to the horizontal. Every diversity of classic style, between early Doric and latest Corinthian, recognised the obligation and the guidance of the principle; nor does it appear how any other style, however contrasted, Byzantine, or Moorish, or Indian, or Gothic, can emancipate itself from a rule at once so stringent and, in truth, so advantageous.

That in truth they cannot, whether so ill advised as to wish it or no, is apparent from the universality in all architecture of any pretension to fine art, of that symmetry which is in fact one of the most important consequences of our principle.

A Gothic cathedral is to the full as symmetrical a building as a Greek temple; the prevalent supposition that it is not so, is either the mistake, or a concession to the mistake, of those who do not distinguish between original design and alterations, and semi-restorations and patch-work; who feel bound to take pleasure in the varied styles of Canterbury Cathedral, and think that the nave and choir of Gloucester happily illustrate the flexibility of their favourite Gothic.

And whether the ceiling of a nave or a cella be arched,—be semicircular or pointed or flat,—it will ever be estimated as low or lofty in effect by an appreciated proportion between its height and breadth,—it will be broad or narrow by corresponding mental comparison of its breadth taken at right angles to its length.

Tros Tyriusve.—Gothic or Greek: from these spontaneous acts of indissoluble association there is no escape, and the corollary appears to be, that in Gothic design, as in Greek, heights are bound to be proportioned upon the vertical in relation to the horizontal; and the further presumption is as little to be overlooked that exact execution of proportionate dimensions will be as valuable in one style as in the other.

This last, however, is a last refinement, and highly as it may enhance the last effect,—admirable effects, though not the most admirable, are probably not inconsistent with somewhat negligent observation of it, especially when very large and varied dimensions are in question.

It would follow from these premises that, if the Gothic architects,—whatever the details and the general proportions of their predilection,—did not make these comparisons the basis of their design, they must have worked upon a faulty

and defective plan. Inventive imagination and corrective taste may, it is true, in favourable cases, compensate for false theory and bad technical aids and instruments, and with such saving qualifications the Mediævals must be largely indeed credited. In fact, if we are to assent,—as it seems we must,—to the expositions of their system by Viollet-le-Duc and others, it is only so that we can account for their practical success, in despite of the disadvantage at which they were placed by their theory.

This is a matter that becomes of importance if Gothic is a style that is to live on; it can only really live, like any other organism, so long as it continues to grow; and growth is dependent on healthy roots and free circulation of air, and resolute cutting away of whatever is dead, whatever is stunted, and rigorous control of whatever, vigorous though it be, is tending to deformity.

Let us follow out then, to a certain extent, the theoretical system upon which a Gothic work was set out, and satisfy ourselves whether it really had much to do with the best beauty that was realized,—whether it was not constantly inapplicable to very important problems, and had not to be departed from,—did not very frequently stand in the way of a better rule,—frequently induce distributions that had been better dispensed with. This is a very heavy bill of indictment, and the greater the honour to the architects who in their self-assumed fetters could still vindicate their native artistic power. With all our respect for them, we owe it to the common art to bring their schemes of harmonizing proportion to the test; and the great test of all is, whether in a given instance, where it was certainly applied, beauty was really achieved, and, when achieved, was really due to the employment of it,—or came by the neglect of it on all critical points, and so, in fact, was conquered in its very despite.

It appears satisfactorily made out that the architects of the Middle Ages adopted triangles, and of these a certain set as generators of proportion.

The first was the rectangular isosceles triangle; that is, a half square set on the diameter of the square as its base, and with right angle at apex.

Secondly, the so-called Egyptian isosceles,—having a base proportioned to vertical as 8 : 5.

Thirdly, the equilateral triangle.

For an example it is shown, among others, that, in the Sainte Chapelle at Paris, not only was the clear of the pointed window-arch formed on an equilateral triangle, but that the full height of the windows was determined by the prolongations of the sides of these triangles; the window-sill being made coincident with the line of their third intersections. The beauty of this chapel may well commend to our favourable consideration a system which manifestly had an influence upon the design. Whether this was the technical system employed exclusively,—whether it is based on true principle, and, if not, how its defects declare themselves in the work, or how it was that they were effectively countervailed, are further questions. Certainly the scientific justification of the system as set forth seems to demand emendation.

The proportions of architecture are based, we are truly told, in the first instance, on stability, and the laws of stability are dependent on geometry; and we may further admit that a triangle may give a very satisfactory expression of stability if appropriately applied—but scarcely that, as a general fact, it gives the most satisfactory: apart from solid pyramids that are their own abutment, inclined forms, by the very force of geometrical stability appealed to, are suggestive of sliding and collapse.

Still less does it appear why design should be restricted to three particular forms of the triangle. Marvellous variety and beauty were certainly evolved from combinations of the specified three, but this only awakens enterprise to experiment upon those that have been passed over. Doubtless, the selected forms present themselves as most easily managed; the rectangle in the semicircle,—the triangle of which the apex is given by the intersection of arcs struck with the same radius, and the triangle which can be set out by the whole numbers, 3, 4, 5, applied to half-base, vertical and inclined side,—a form which, however, shares its advantage with others, though less known. As regards the first form, it has no special Gothic application, being equivalent, even in the cited example of the Cathedral of Bourges, to the system of equal squares, which is the common property of mechanical design in all times and countries.

The most complete example of a systematic application of theory in the design of a great Gothic work is, probably, Cologne Cathedral, as elaborately analyzed by Boisserée. The favourite equilateral triangle regulates dimensions in one form or another throughout, and the result that, at least, was not avoided, stands thus on record:—"At Cologne, the artist has vigorously adhered to his geometrical data; his composition is a formula which makes no allowance for perspective effect, nor of the apparent alterations of curves resulting from the height at which they are placed. Thus the choir of Cologne is rather surprising than delightful; the geometrician has overpowered the artist." So Viollet-le-Duc. Fergusson marks still more distinctly that it is precisely in the æsthetic effect of proportion that the building is defective. "Looking at Cologne in any light, no one can fail to perceive that its principal defect is its relative shortness: now that the whole of the interior is finished these defects of proportion are become more apparent than they were before,—the height of the nave is nearly four times the width, a proportion intolerable in architecture, &c."

Viollet-le-Duc, while stanchly asserting the employment by the Goths of an harmonic theory, makes claim for the French architects—specially at Beauvais—that they avoided the rigid practice that failed at Cologne; "the artist is ever present at the side of the geometrician, and knows in case of need how to make formulas give way" (*faire fléchir les formules*).

If this can be approved, it is excellently said; but a still stancher theorist of harmony is justified in saying that frequent and important suppressions of formulæ prove by their very success either that the formulas were wrong, or, at least, the system incomplete, and so he gains a *locus standi* for the exposition of a more developed theory, that will render an account both when subordinate rules must be observed and when they either must or may be departed from.

We will take the very cited example of Beauvais,—the choir, as figured and commented upon in vol. vii., p. 551, of the Dictionary of French Architecture. It is shown that the spacing of the piers both of nave and aisles is determined by the division of the plan into systems of equilateral triangles. Thus the axis of the nave being laid down and its width from centre to centre of pier adopted, the axial lines of the nave piers are also obtained; their longitudinal spacing upon these is then determined by an equilateral triangle, having one angle on the nave axis and each of the others on the centre of a pier; that is to say, the diagonals of the four piers of a bay intersect the axis of the nave at an angle of 60 degrees. The oblong plan of a bay thus obtained has the proportion of the side of an equilateral triangle to double its vertex, or 4 : 6·928. These numbers may seem tolerably near to the ratio of whole numbers 4 : 7, but the error in exactness upon a plan of 46 ft. amounts to more feet—2·6—than a Greek would have tolerated tenths of inches.

In general result, the spacing of the side openings is rather more than half the width of the nave, which may possibly be effective; but the advantage of such a distribution of difference would have been as easily obtained by direct comparison of lengths and breadths—a system which would also have provided a large variety for free selection.

To proceed: the prolongations of the sides of the equilateral triangles give intersections deciding the line of aisle piers or shafts, which are placed upon them accurately; and then still further prolonged, the line of the external wall,—the outer line.

The interior aisle has still the advantage, whatever it is worth, of corresponding with an equilateral triangle in the form that it is transversely as the vertex and longitudinally as the side,—or 1 : 1·732; but in the outer aisle this fails from the thickness of the wall being deducted from the vertex. There is thus introduced a difference of width between the aisles which may have all the general value claimed for it, but which is only gained by the sacrifice of the system,—and might have been so gained under no system at all,—under a more rational system it might have been effected consistently.

Again, the width of the bay next to the piers of the crossing is diminished from just regard to the responsibility of extra thrust, but the degree of diminution is again not in any way deducible from the triangles. Credit is taken for the architect's superiority to formulas in neglecting here the centres of his triangulated plan; but it is again no slight impeachment of a theory of proportion that it breaks down and has to be deserted precisely where its aid should be most valuable,—on the verge of an inevitable modulation.

The incommensurablenesses of the plan are propagated to the vaulting, as the span of the transverse arch has the same broken ratio to that of the diagonal again as the vertical to the side of an equilateral triangle; in the arches themselves, where alone the triangular form is really salient, the assumed governing triangle of the design is set aside, and exercises no appointing power over its successor. The transverse,—the more important arch,—is proportioned as 4 in span to 3 in height, or very considerably flatter; and to the height thus determined the diagonal has to accommodate itself; but it does not appear that the particular height was selected from any common principle.

The same system is pursued not much more satisfactorily into the elevation of the interior. The interval from centre to centre of piers is taken as the side of an equilateral triangle from which others are raised, forming a vertical series of lozenges, of which the limits should define the architectural divisions. But already at the spring of the arches the scheme fails, and a new commencement has to be assumed, and again above the triforium still another commencement, and a different span. It is only in the arch of the window that the equilateral triangle re-appears beyond all question, or indeed is effectively apparent at all.

Such a faltering application then of the equilateral triangle as a guiding instrument of design seems to illustrate little else than its inefficiency, if the result at last was beauty compatible with all these divarications and obscurities. In any case it only promises to conduct into a very thicket of incommensurables that trip up the principle of strict proportion at every step.

But even if the coincidences had been much more frequent and exact than they prove to be, to what would they amount? In what manner do they, as set forth, touch or pretend to touch those determining lines on which the ultimate impression of appropriate and expressive proportion depends? The expositor, at least, does not pretend to furnish us with a norm for the full height relatively to breadth, either of a bay or of the nave transversely,—still less of length of choir relatively to height; and yet these are the combinations that appeal directly and overpoweringly to our sensibilities; these are the terms between which, if anywhere, harmony must preside, and assert itself and its prerogative.

We must not, however, sacrifice the architect to his interpreter; from the original error of adopting units of transverse dimensions that are incommensurable, he is not to be absolved, nor from its consequences; but the diagrams supplied seem to establish, or at least allow the assumption of, a more simple process of development than has been set forth.

The height from the proper level of the pavement to the upper string-course of the triforium will be found to equal very exactly the width of the nave and two side-aisles, taken from the centre of the nave-pier to the wall. The width of the nave measures the pier from the floor up to the capital of the side-arch, and the extent from this point to the string-course at the base of the triforium equals the breadth of the first aisle, and the triforium itself equals that of the outer aisle, which is diminished by the thickness of the external wall. The difference, however, here lost is thrown into the dimension from the top of the triforium to the springing of the nave-arch, and makes up its height with one width of the aisle. In this way the height of the bay, from floor to springing, becomes proportioned to the width of the nave as 5 to 2, a very lofty proportion; the added height of the nave-arch brings out the still loftier of 6 to 2 = 3 : 1.

The height of the nave, like its breadth, is made up of verticals of the normal equilateral triangle, and has this to thank for its commensurableness; but the bay, having its spacing determined by the side of the triangle, does not participate in the advantage.

In the repetition, as a vertical whole, of a dimension that is very decided, but still broken into more marked divisions, horizontally, the Gothic architect employed a stratagem of covert commensurableness that the Greek had practised before him, and that would be an available furtherance of repose in any style of architecture; but the operation by the equilateral triangle

convicts itself in every case where it does not become virtually inoperative. In detail it leads to the confusion of proportion, and as regards any pretensions it may have for saving general effect, let us hear the independent judgment of an architect well affected to the deservings, if any, of the style.

"No building of its dimensions and beauty of detail can well be so unsatisfactory as the choir at Beauvais."—i. 12. The architects "determined to carry the clearstory to the unprecedented height of 150 ft., or about three times the width, measuring from the centre of one pier to that of the next (opposite). This, with a very long nave, a very acute vault, wide pier-spaces, and bold massive supports, might have been not only tolerable but sublime; but as this cathedral wants all these qualities, the effect now is only, &c."—*Fergusson, Arch.*, vol. ii., p. 494.

We should only be travelling over the same ground to the same results by developing in detail the relation of the beauty of the Sainte Chapelle to the technical theory of regulation that there also was so lightly held in hand.

The most glorious culmination of art is arrived at in those rare and happy instances where genius is in full possession of all traditional, technical, academical aids and instruments, and still can assert its supremacy in unfettered mastery. The workman then has the best tools, but is master of his tools no less than of his materials; the artist is neither cramped by a rule that is wrong, nor forced to break through it,—laudably, no doubt, but as at random so ever precariously. The qualification of the style of Bolingbroke by Pope,—

"Correct with spirit, elegant with ease,"—

exactly expresses that marvellous combination of regularity and inspiration that gives effect to the works of the Greeks in poetry, and oratory, and sculpture—and in architecture perhaps most of all. The genius of the Mediæval never quite attained—so it seems to the writer—this last term of accomplishment. What genius could do with imperfect instruments he grandly did; but, as the instrument was advancing to perfection, his chances and his age were past, and theory alone was then unable to do more than turn correctness into coldness, and regularity into restraint, while the free daring of true genius degenerated into extravagance or subsided in timidity.

Two great masters, but in other arts, came just in time to show the world what the Mediæval spirit was capable of when combined with the cultured sense of proportion which is the world's heritage from Greece. Only in the sacred pictures of Raffaelle did the most divine inspirations of Mediæval painting attain to the fullest and most harmonized development; and only in the plays of Shakspeare, which reflect in every act the influences, however indirectly received, of the antique drama, did the dramatic genius that pervaded the Middle Ages break fully into bloom.

In either case, the proper Renaissance in a disparaging sense,—the revival which would revive the exhausted,—that would accept imitation for a new birth, came later,—or so far as it was contemporary, ran on in parallel stream, but on a lower level. A Gothic Renaissance is assuredly as much to be deprecated as ever was a Classic in such a sense as this; in a better sense it is worth striking for; he will be at least at the right opening who, in the spirit of our Mediæval fathers themselves, shall be confident in purpose not to imitate but to surpass them as they ever did their best to overpass their progenitors. There is still a large field open for the adjustment of new forms to new requirements, and especially for the enhancement of the best Gothic effects, by harmony of well-understood and exactly-realized proportion.

GAS-HEATED BOILERS.—An engine and boiler have been erected in the warehouse, No. 50, Cannon-street, City, worked by steam generated by gas-heat, under the patent of Mr. Arthur Jackson. The fire-offices, it is said, have admitted the system to be adopted without any increase of premium, and thus in all warehouses or other establishments where cranes, hoists, or other apparatus requiring power are in use, steam can be applied, without stoker, smoke, ashes, or dirt of any description. No brickwork or chimney is necessary. The space occupied is very small, and the furnace is fully kindled in a few seconds, and extinguished instantly.

THE HEALTH OF LONDON IN 1866.

THE Registrar-General's annual summary of the Weekly returns of births and deaths in London is at all times full of interest, and the fact of its appearance so promptly after the close of the year with which it deals, gives it a value, of which too many of our official publications are bereft through such delay in their issue, that the facts to which they refer have been previously dismissed from the public mind. The annual summary of the births and deaths in London during the year 1866 is, moreover, invested with an additional interest from its containing the first complete *resumé* of the effects of the cholera epidemic in the various portions of the metropolis for the whole year.

The meteorological conditions of the year 1866, as far as they present any variations from an average of previous years, would appear to have been favourable to the public health. The mean temperature of the air was, at the Royal Observatory, Greenwich, 49·8°, or only half a degree above the average of 25 years, and whereas in the first and last quarters of the year the temperature was above the average, the summer was cooler; thus neither intense cold in winter, nor excessive heat in summer, tended to raise the mortality. The 30½ inches of rain which fell during the year, was an inch above the average of 51 years; and the average daily amount of horizontal movement in the air was 274 miles, or considerably higher than it has been since 1848; there was, therefore, no deficiency of rain, or of movement in the air, both elements of considerable importance to the health of the inhabitants of crowded and ill-drained towns. The effect of these apparently favourable conditions was more than counterbalanced by the visitation of a cholera epidemic, which raised the rate of mortality in 1866 considerably above the average, and higher than in any years since 1840, excepting only the influenza year 1847, the cholera years of 1849 and 1854, and 1864 when diseases of the respiratory organs were unusually fatal.

The population of London, estimated to the middle of 1866, was 3,037,991. During the year 107,992 births and 80,129 deaths were registered in this population, thus showing, in spite of the excess of deaths, a natural increase during the year by the balance of births over deaths of 27,863; the excess in the previous year had been 33,262. The numbers of both births and deaths exceeded those recorded in any previous year. The 80,129 deaths give a rate of mortality for the year equal to 26·5 per 1,000 persons estimated to be living; or higher than the rates in any of the last 27 years, excepting the four above mentioned, when they were respectively 27·0, 30·1, 29·4, and 26·5. The average annual rate of mortality in London during the ten years 1856-65 was 23·6; and the death-rate in 1866, from all causes, other than cholera, was 24·6, the rate being raised by an increased mortality from diarrhœa in the autumn, in addition to the actual deaths from cholera. The death-rates in most of our large towns have been steadily increasing during the past few years; and this undeniable fact has only recently attracted the attention which its importance should command. The cause of this general increase of mortality is now beginning to be understood, and there is, therefore, ground for hope that before long a re-action may take place. The growth of London in recent years has been unexampled in previous periods, and yet the buildings have not kept pace with the increase of population. The dwellings of the labouring classes have been undergoing a steady process of demolition for many years to make room for railways, warehouses, or other erections, which bear a higher commercial value than the poor class of houses which have been removed. The evicted tenants, unable and unwilling, to seek their homes at a great distance from their daily occupations, have crowded into the remaining houses of their neighbourhoods, regardless of the consequences to health, and as a natural result, fevers and other epidemic diseases have increased in fatality, and the death-rate generally has been higher. In the five years, 1855-60, the death-rate in London, averaged 22·7 per 1,000, while in the years 1861-5, it had increased to 24·5. The experiments upon a large scale, which have been made by the trustees of Mr. Peabody's gift, and by Alderman Waterlow's company, have set at rest many of the doubts which have been so often expressed as to the practicability of erecting model dwellings for the poor, which should at once be attractive to the classes for which they are intended, and prove a safe 5 per cent. investment for capitalists. If the attention of architects and builders were seriously given to the subject, the examples of which we speak would soon be further improved upon; it is also to be expected that the public, convinced that this is a matter of life and death to the labouring classes, and also that such erections on freehold land afford good security for the capital employed, will, ere long, support this movement with at least a portion of the confidence which, has recently been bestowed upon the long succession of "foreign loans."

Of the 80,129 deaths registered in London during 1866, 23,680 resulted from diseases of the zymotic class. Cholera alone caused 5,577 of these deaths; and, before passing on to notice a few of the other principal causes of death, it will be interesting, while the recent epidemic is fresh in our minds, to recall a few of the facts connected with its outbreak, duration, and results. Up to the end of June, throughout the metropolis only 29 deaths had in the six months been referred to cholera, mostly of a sporadic character; but, during the week ending the 7th of July, 14 fatal cases were recorded, and in the following week these had increased to 32, of which a large proportion were of the worst Asiatic type, and occurred in Stepney, Mile-end Old Town, Poplar, and Bermondsey, the very districts that afterwards suffered so terribly. The deaths from cholera now rose rapidly, until, in the week ending 4th of August, 1,053 cases were registered. From this date the numbers declined almost as rapidly as they had risen to about 200 per week at the beginning of September; but from this point the disappearance of the epidemic was very gradual. Even in the week ending 17th of November, 32 cases were recorded; but by the end of the month the disease as an epidemic may be said to have died out. Only in the eastern districts of London did the epidemic ever assume alarming proportions. In those eastern districts comprising the unions of Shoreditch, Bethnal Green, Whitechapel, St. George-in-the-East, Stepney, Mile-end Old Town, and Poplar, occurred 3,931 of the 5,577 deaths from cholera in the whole of London. In Shoreditch, the death-rate from this disease for the whole year did not exceed 1·07 per 1,000 persons living, but in Stepney it was 10·76; in Poplar, 9·08; and in St. George-in-the-East, 8·79. The southern districts suffered next most severely, showing a total of 712 deaths; but the disease in a severe form was almost confined to Greenwich and Woolwich, where the death-rate per 1,000 from this cause was 2·07 and 1·69. In the northern districts, including Marylebone, Pancras, Islington, and Hackney, 417 deaths occurred; the rates per 1,000 were, 1·06 in Hackney, ·6 in Pancras, ·43 in Islington, and only ·3 in Marylebone. St. Giles, Strand, Holborn, Clerkenwell, St. Luke, and the City, comprising the Central districts, contributed 329 deaths, the highest rates being 1·57, and 1·18 in the east and west portions of the City. Cholera was scarcely epidemic in any of the west districts of London, the total deaths in the year being 188; the heaviest death-rate per 1,000 from this disease being ·84 in Fulham, whereas in Paddington, Kensington, and Chelsea it did not exceed ·28, ·21, and ·33, and in St. George, Hanover-square, it was only ·17. The fact of the first serious appearance of cholera, and of by far its most terrible ravages having occurred in the area supplied by the East London Water Company, is beyond all dispute; but whether this company's water either caused the outbreak, or rendered it more fatal, seems to be beyond the possibility of conclusive demonstration; the accumulated evidence of succeeding epidemics is, however, sufficiently impressive to enforce conviction upon the most incredulous that purity of water supply is an element of the first value in securing comparative immunity during a cholera epidemic.

Other diseases of an epidemic character besides cholera contributed to the high death-rate in London last year. Small-pox, to which in 1864 and 1865 only 537 and 646 deaths were referred, was fatal last year in 1,388 cases. The unsatisfactory working of the present legislation upon vaccination will, it is to be hoped, be remedied during the present session. Measles also increased from 1,302 deaths in 1865 to 2,259 last year; on the contrary, deaths from scarlatina and typhus each showed a decrease. The year 1866 was remarkably fatal to persons suffering from phthisis, the more than average amount of wind may in part account for this; in the three previous years, the deaths from this disease had been successively 7,991, 8,559, and 8,710, but last year they increased to 9,277; the rapid increase in the fatality of this disease has

a very close bearing upon the overcrowding in dwellings in so many parts of the town, which is not only dangerous in times of epidemics, but is continually sowing the seeds of untimely death in numerous and varied diseases.

Space will not allow us to enter more into detail regarding the causes of death in London last year, or even to touch upon many subjects of interest discussed in the pages of the Registrar General's Annual Summary. The result of the cholera epidemic in London is from one point of view satisfactory, its ravages were less extended and less severe than in either of the former visitations of 1849 or 1854; in 1849 the deaths from cholera in the Metropolis were 14,137, in 1854 10,738, and last year only 5,577; but we, inhabitants of the largest city in the world, have a heavy task before us if we would feel secure against future visitations, and seriously undertake to reduce our death-rate more nearly to the established healthy standard of 17 per 1,000 persons living.

A RAMBLE AMONG THE RUINED AQUEDUCTS AND FOUNTAINS OF ROME.

WE have already briefly alluded to the visit lately paid by the British Archæological Society of Rome to the most remarkable ruins of the antique aqueducts. The object was, under the guidance of Mr. Parker, to trace in ruin and identify by historic records the earliest monuments of the uses of water for public benefit or more refined luxury by the Romans, and to illustrate all ascertainable sites and buildings mentioned by classic authors in connexion with the sacred fountain, the public thermæ, the private bathing-house, and the aqueducts of republican or imperial origin.

For the first walking expedition the rendezvous was before S. Anastasia, near the north-western base of the Palatine hill. At a few paces thence is seen, westward from that church, through a cavity opened in the pavement, the subterranean course of a hot spring, identifiable as the *Fons Juturna*, which flows at the depth of about 20 ft. below the modern street-level, and emerges to view near the mouth of the Cloaca Maxima. Leaving S. Anastasia, the party first visited the arch of Janus Quadrifrons, to observe where the ancient city's level is obviously left to this day unaltered, at the base of the great *mur* supporting that quadruple arch ascribed to the time of Septimius Severus. The ruins covering the northern slopes of the Palatine, not far distant hence, present examples of construction various in date,—that of the kings of Sylla and the emperors; and near an extent of buttress walls, in massive peperino blocks, that, if not positively referable to the city of Romulus, must certainly pertain to the very oldest fortifications built on this hill, we enter a conduit hollowed in the living rock, lofty, winding, and sufficiently spacious to be explored for the distance of several feet, that may have served for the supply of water to garrisons, or the citizens in general. Mr. Parker observed the similarity between this conduit and that of Alba Longa, which yawns on the rock-side, close to the picturesque convent of Palazzuola, above the Alban lake. Ascending the same hill, and bearing in south-eastern direction, along the grounds where excavations are now being carried on by Government, we reach several imposing and, in many parts, well-preserved remains of imperial building, whose long suites of chambers, still vaulted, gloomy, irregular, and labyrinthine, present a solemn effect of dark interiors, in which have been found many valuable marbles, sculptured and architectural fragments. Some of these have the appearance of being baths, several halls having distinctly traceable divisions for bathing purposes, and may be supposed among the works of Nero. Descending the Palatine, on the side of the Circus Maximus, we visit, below the height occupied by S. Balbina, known as the Pseudo-Aventine, south of the loftier hill so called, an extensive brickwork ruin, now divested of all architectonic character on the outside, but with interior divided into parallel vaulted chambers, in the greater part entire—no other than the Piscina Publica, or great reservoir, where were centred the waters of the Appian and Trajan aqueduct, now extant in but few remains; the exterior masonry, perhaps, of that last emperor's time, while the interior may be supposed republican. Following the Appian and quitting that highway, near the church of S. Sisto, to enter into private grounds, we visit the recognisable site of the valley of Egiria, below the western slopes of the Cœlian, undoubtedly comprised within the actual walls, and not far from the vanished Porta Capena, its proximity to which may be proved by the well-known passage in Juvenal's satire,—*In vallem Egiriæ descendimus et speluncam*, &c. Ascending the Cœlian, we see, on a terrace ground, near the villa Mattei, and behind the church of S. Maria, a castellum (or great reservoir) of the Neronian aqueduct, that brought water from the Claudian along this hill to the Palatine, and a magnificent specimen of its kind is this lofty structure, the lower part built of large travertine blocks, the upper of finest brickwork. Near its base we look down, at considerable depth, into a channel through which the waters passed in one direction below the level we stand on. The pleasant gardens of the Volkouski villa, near the Lateran, next site of antiquarian interest, comprise a part of the Agger of Servius Tullius, and a majestic extent of the Neronian arcades now clothed with ivy, along whose lofty summits we distinguish, here and there, the leaden pipes and the *spiragli* (respiratories), conical in form, of the modern *Acqua Felice*, or Sixtus the Fifth's aqueduct, for which many ancient structures were made available; in some parts, indeed, unscrupulously destroyed. Entering another estate near the *S. Croce* basilica, now traversed by the railway, we find many remarkable ruins; among others a suite of vaulted chambers (now partly serving as a garden-house) which Mr. Parker identifies as a castellum of the Alexandrine aqueduct—that of Alexander Severus. Near this stands the still beautiful decagonal ruin, with the remnant of an ample cupola, commonly called the "Temple of Minerva Medica," but recognised on better authority as the great hall (like another Pantheon) of Alexander's Thermæ, supplied with water from the same aqueduct,—an appropriation further shown by a pentagonal reservoir that opens centrally to its area. On the same estate is a spacious castellum of the Marcian aqueduct, with lofty vaulted chambers, partly subterranean, and of fine brickwork, into which we may descend by a ruinous staircase; also a nympheum of the Alexandrine aqueduct, now used as a wine-cellar, and containing a cistern filled with water; its antique vaulting of very ample span, now so completely blackened, that a most gloomy scene is presented by its interior.

The less generally known aqueduct ruins on the Campagna, south of Rome, formed the object of the very interesting excursion on which we set out from the Porta Maggiore on the next day. After proceeding about two miles along the Via Labicana, we struck into a by-way that runs to the right immediately below the arcades of the Sixtine aqueduct, following which structures the first noticeable antique is a series of the Marcian aqueduct arches restored in brickwork of the second century, and almost buried below the ground on the left of the road. At a short distance farther on, leaving the highway, we see a majestic remnant of the Claudian aqueduct, near to where it meets that of Pope Sixtus at a right angle in a solitary field—offering occasion to contrast the grand style of the antique with the paltriness of the modern building. Here we see how (as, indeed, elsewhere) the Claudian arches have been partly filled up by brickwork of the time of Nerva or Trajan. In the midst of an unenclosed level ground, not far thence, stand the mouldering substructures of a great quadrangular brick building, with rows of niches on the arcades that seem to have served only as buttresses, the masonry in most parts lateritial, in others *opus reticulatum*, and this Mr. Parker well establishes to be a nympheum built by Augustus for the enjoyment and use of salubrious waters on this now solitary spot. Next is reached one of the most finely picturesque groups of ruins that even Rome's Campagna presents to us—the parallel arcades of the united Marcian, Tepulan, and Julian aqueducts, and those of the more conspicuous Claudian that approach within a slight distance, here divided from each other by a gently sloping ground bestrewn with underwood, and watered by the *Acqua Crabra* (the antique Marana), here running within a stone channel. The Marcian arcades are of regular and massive stonework; the rest of the structure above them, of concrete; and more modern brickwork (some imperial addition) fills up the interstices of many arches; while ivy, of the most luxuriant growth, in great part conceals this noble structure, adverse to the studies of the archæologist, but contributing to the effect of melancholy beauty in this impressive ruin-scene, little known or visited, amidst silent solitude. Not far from this spot we find the Marcian and Claudian aqueducts changing sides, so that the former rises to the left, the latter to the right, as we follow the road in our approach to the modern arch (*Arco Furba*) that stands in the midst of the long lines of partly antique partly modern arcades, thrown over the road to Frascati. Near a modern fountain and beside this arch, the Marcian and Claudian are seen to join, becoming for some extent instead of two a single aqueduct. About half a mile hence we reach the Torre Fiscale, a very high-square tower of the fifteenth century, that rises one of the most far-seen among such Mediæval piles on the Campagna, from the aqueduct arcades that support it. And the interior of this tower is well worth a visit; for here we see the junction of several *specus*, distinctly discernible as we gaze up the quadrangular building of the Anio Novus, Claudian, Marcian, Tepulan, and Julian aqueducts,—no fewer, indeed, than five *specus* uniting at one centre within this same tower, Torre Fiscale, the name given to it because here those baronial brigands of the Rome of later ages used to levy black mail on all who passed as price of their safe journey to or from the city. On some elevated ground near a solitary *osteria*, not far from that tower, we again find the arcades of the Marcian aqueduct, but here rising to no considerable height, and we can penetrate the *specus*, permeable for a few hundred feet, till choked up by soil or ruin. From this channel it may be assumed that about one-tenth of the water-supply of Rome reached its destination in the Imperial period. We have not to walk far from this spot to find once more the loftier Claudian arcades; and pursuing our way under their shadow, we come upon a sluice of the Julian aqueduct, similar in method to the locks of our modern canals, but, as the channel is here narrow, of diminutive scale; and it may be concluded that the great villa of Commodus, whose ruins still stand imposingly near the Appian Way, had its water-supply from this branch of the same aqueduct. On the same level ground we may be startled by suddenly seeing a wide round orifice yawning at our feet, fenced by railings, through which we look down into a mysterious and dark abyss, known to be the piscina of the Marcian aqueduct; and Mr. Parker assured his auditors, on reliable authority that we here stood above a stupendous subterranean dome, equal in diameter to that of St. Peter's, and with vault, of concrete, about 20 ft. in thickness, overhanging the vast reservoir that extends far in invisible depth below. The engineer of the Roman Government, Signor Morandi, had lately the courage to descend and explore this extraordinary excavation. At a short distance, on a line with that orifice, rises a steep isolated mound, that might seem of natural formation, but is ascertained to be the centre shell of a similar and not less enormous dome, pertaining to a piscina of the Claudian aqueduct. From its summit is enjoyed a view of great extent, and so grandly characterized, so striking in its features both of ruin and landscape that one might, in contemplating it, forget all specific antiquarian studies under the spells of feeling and association. Another similar, but less lofty mound, at a short distance, is identified as connected with the Anio Novus piscina, whose swelling dome rises above the Campagna surface like the afore-mentioned; and on its slopes we observe remnants of some building, perhaps of a later imperial period, constructed upon its summit, or absorbing it. At this point, about eight miles distant from Rome, our day's excursion had its term. In the course of this and the previous day's studies, Mr. Parker had not failed to point out all that is remarkable in the more commonly-visited aqueduct ruins on our route; the majestic castellum of the Claudian and Anio Novus, with the inscriptions of Claudius, Vespasian, and Titus on its high attic, now forming the Porta Maggiore in the line of Honorian walls; the castellum of the Neronian, under which the road passes between the Lateran and S. Croce basilicas, and the now half-buried arch of the Julian, Tepulan, and Marcian, connected, in the same later fortifications, with the Porta S. Lorenzo, and bearing inscriptions of Augustus, Titus, and Antoninus Caracalla. Along the outer line of these Honorian walls, between the above-named gateways, are to be observed also several remains of aqueduct structures absorbed into the cincture; the triple *specus*, superimposed, of the Marcian, Tepulan, and Julian, with a

massive pilaster of stonework below; a massive portion, in peperino stone, of the Anio Vetus, brought to the city A.U.C. 481, by Curius Dentatus and Lucius Papirius, the censors; and another *specus* probably belonging to a castellum of the Julian, near a curtain wall of the best brickwork, with windows and modillions, the style of which seems to indicate an edifice of the Neronian period.

Different, indeed, is it to follow out the familiar range of antiquities described in all guide-books, pointed out by all *ciceroni*, and to quit that beaten path for explanation based on knowledge, or for verifying theories drawn from the study of ancient writers, such as is the principle that guides archæological researches like these; the energetic pursuit of which may lead to the discovery of more, among the hidden treasures of Rome's monuments, than has yet been made known.

PROFESSIONAL SKILL IN HIGH LIFE.

To the honour of the British aristocracy be it said, that it numbers in its ranks many who are not afraid of work. In the natural course of things we do not expect a persistence in work and a rent-roll of 30,000*l.* a year to go together. The reason, of course, is that the rich man is under no actual necessity to labour. It is otherwise with the poor man, who has no choice but to live by the sweat of his brow. Hard labour, and continuous exertion of one kind or another, are his only resource. It will be observed that we speak merely of the necessity of the thing. There is a higher sense in which none can claim exemption from work, since work is the universal duty, and the great law of life. But while the obligation to labour is equally binding upon all, it is only the poor and dependent who are under the acual necessity of adopting work as a profession for support. The rich, as the saying is, can afford not to work. Your peer may toil,—your peasant must. The dignity and sacredness of labour fully admitted, titles, wealth, and the leisure which wealth brings with it, it must also be admitted, are formidable temptations to idleness, and strongly induce *vis inertia* on the part of the possessor of them, when correct principles and proper motives fail to govern the actions of life. A desire for fame, though a very strong incitement to exertion with mankind generally, is perhaps less so with the lord than the commoner, because the former feels in some measure at least, satisfied with the honours and distinctions that necessarily attach to his exalted position. If he is not entirely devoid of intellect,—if only he be able to "put in an appearance" in the House of Lords, the English peer is to a certain extent a public character, the holder of considerable influence, and the recipient of many privileges,—in the eyes of the multitude a very enviable being. Many of the aristocracy are, no doubt, satisfied with such distinction—that of birth—and are indifferent to true greatness, which is neither born with a man, nor thrust upon him, but is attained by personal achievement. But there have been, and still are, many brilliant exceptions. There are not a few of the "upper ten thousand" who have shown that they love labour for its own sake. On the whole the British aristocracy will compare favourably in this, as in every essential respect, with the aristocracy of any other country. They are not all "wise as serpents and harmless as doves;" they are possibly not what they might be; but still many great men have sprung from them, and, as a class, they have immensely improved in mind, in manners, and in morals even since the days of the Regency. Scandal in high life has not yet entirely died out, but it certainly does not flourish as it once did. Vice, openly and glaringly indulged in, is no longer fashionable.

There is no need to point out that some of the ablest statesmen, some of the most renowned soldiers, eminent lawyers, and distinguished scholars that this country has ever seen, have sprung from the aristocracy. Names might be adduced by the score. In other departments of professional life the nobility have done real service. The labours of some in science and art, for instance, have materially aided the cause of civilization throughout the world; others have shown mechanical skill and inventive talent in less ambitious ways, though with really beneficial results. Walpole gave us an account of royal and noble authors,—a history of royal and noble workers in other fields of labour, as in the field of mechanical invention and discovery, would prove not uninteresting. And we think it might be shown that the desire and faculty for labour in this and other directions are being largely developed in high places in the present day. It is particularly gratifying to observe that so many of our younger nobles are busying themselves in hard, earnest work of various kinds. We have, for example, Viscount Amberley, a hardworking Member of Parliament, and an able writer, at a very early age. The Marquis of Lorne, who only very recently attained his majority, has already pronounced with judgment on public questions; and we observe the announcement of his first work, "A Trip to the Tropics." The other day the youthful Marquis of Bute, in a long letter in the *Times*, gave an account of a recent visit to the Mosque of Hebron, describing that interesting place with a facility of expression and an amount of architectural knowledge certainly altogether unexpected from a peer in his teens. Other noblemen, like Lord Milton, set out for wild and unfrequented countries, and endure all manner of hardships in order that they may earn the rewards of the scientific traveller. All this is only in accordance with the earnest and practical character of the age in which we live.

Let us see what our nobility have done in the field of discovery and invention. To go back a little in our history, the first prominent name that suggests itself is that of Baron Napier, of Merchesston, the greatest mathematician his country ever produced, and who was regarded by Kepler as one of the greatest men of his age. Napier's well-known invention of logarithms, published in 1614; his "Rods," designed to facilitate the division and multiplication of large numbers; and his improvements in spherical trigonometry, have conferred great benefits on mankind, and earned for their inventor a world-wide reputation. The first actual steam-engine was constructed by a nobleman whose life forms one of the most romantic chapters of English history—Edward Somerset, Earl of Glamorgan and Marquis of Worcester. He accomplished what everybody before him had failed in,—he provided means to make the action of the steam-engine continuous; and although his invention was ultimately superseded by the condensing engine, and by more perfect inventions since, it was unquestionably a triumph of genius, and served its purpose. The discoveries in experimental philosophy of the Hon. Robert Boyle, son of the Earl of Cork, belong to the same period. The Stanhope printing-press is of purely aristocratic origin, being the work of the eccentric and clever earl of that name,—the "minority of one,"—and brother-in-law of Pitt, Stanhope. Until the introduction of the Columbian and the Albion presses, the Stanhope press was the best thing of its kind, and a most important invention. Though still in use, it is only in a small way, the steam-printing machine having immeasurably out-distanced all its rivals. But Earl Stanhope's inventive faculty did not end with his press. He lays claim to a plan for securing buildings from fire, to two calculating-machines, one of which performed addition and subtraction, the other multiplication and division, as also a monochord for tuning musical instruments, a vessel to sail against wind and tide, and an improved method of stereotyping. We may add that the Stanhope family have in addition given us a new style of coat, and a new carriage. Lord Camelford who, in 1804, was shot in a duel with Captain Best, was not only a young man of great literary taste, but also a very clever chemist. The Duke of Bridgewater's name deserves mention as being inseparably connected with Brindley and canal engineering; while Lord Rosse will always be remembered with honour for his invention of the great telescope which bears his name. Architecture and building have had several distinguished disciples in the peerage. It is almost unnecessary to refer to the Earl of Burlington, who planned and designed the well-known mansion in Piccadilly, about which so much has been said of late. The colonnade of this edifice is justly admired for the beauty of its proportions. The famous villa of Chiswick was also built from designs by this nobleman. The late Prince Consort, besides being a good architect, was an excellent turner in wood, and an efficient amateur photographer. It is singular, we may here remark, what a fascination photography has for royalty, and how many princes have become extremely proficient in the art. The latest name added to the roll of royal amateurs is that of the Grand Duke of Tuscany, who has produced, it is said, some magnificent specimens of scenery. For architectural ability the present Earl Lovelace is perhaps the most eminent of his class of the day. We might point to his own mansion at Ripley, Surrey, as well as to the new school and the inn of the village, as examples of his lordship's skill as an architect. The earl's eldest son (Byron's grandson), the late Lord Ockham, inherited his father's notions of the dignity of labour, and carried them much further. Dropping his title, he entered the ship-building yard of Mr. Scott Russell as a common artisan. This young man carried his zeal almost to a monomania. He wanted, he said, to found a great firm—"Lord Ockham & Company, Shipbuilders, Millwall." Unhappily his career was cut short before he attained the object of his ambition. Another peer, the Earl of Caithness, has turned his practical knowledge of engineering to good account on different occasions. When the Princess Alexandra arrived in London, the Earl was honoured with the direction and personal guidance of the royal train from Paddington to Windsor. In his own country he has transformed his carriage into a locomotive, and travels the turnpike by steam. Several young noblemen, including the Duke of Sutherland and Earl Grosvenor, have gone in heartily for the fire brigade,—following the example of Lord Craven, of Charles II.'s time, who was a constant attendant at fires. Craven used always to have a horse ready saddled in the stable, and rewarded the first that gave him notice of such an accident. He usually rode a white horse, well known to the London mob, which got the credit of being able to smell the fire from afar off. On these occasions Craven is said to have been an active and efficient volunteer. His Royal Highness the Prince of Wales has not disdained the helmet and the hose; and, after all, there may be worse ways of spending time than assisting at a fire. By the way, the Duke of Sutherland's mother, the Dowager Duchess, has exhibited decided taste as the designer of carpet patterns, and we believe that her Grace is not the only clever milliner to be found among our aristocratic dames. Rumour states that the Princess of Wales herself might instruct some of the Court milliners in the mysteries of their own craft. The Hon. Mrs. Damer is probably the only instance of a lady in her sphere attaining eminence as a sculptor; it is pretty generally known however, that many ladies of rank of the present day excel as amateur painters, modellers, musical composers, &c., and their claims in the field of literature are universally acknowledged. With the late Lord Sefton cookery was a fine art. He showed decided talent in the preparation of simple dishes, while the taste which the late Lord Poltimore displayed in laying out a table, earned for himself a name among his contemporaries. Earl Granville and Lord Torrington—the former especially—excel as dairy farmers, Lord Radnor as a breeder of pigs, and the Earl of Essex as a sanitary reformer. Did not Beau Brummell confess with something like remorse, that he once ate a pea? What would the exquisite George have thought could he have received an invitation from the Earl of Essex to inspect one of his lordship's favourite sewers? or had Lord Radnor asked him to examine some of his prize porkers? He must have fainted at the idea. Brummell belonged to the class of which George IV., Lord Petersham, and Colonel Kelly, were leading ornaments, and representative types—men who had skill in cutting out coats, and originality sufficient to invent blacking, but who had no souls above buttons. It must be regarded as a wholesome sign of the time that the mere dandy and idler is dying out, and that work has become the order of the day in the castle as well as in the cottage. We deem it a good social tendency that members of the aristocracy should leave their own circles, and take part with other classes in the common affairs of every-day life. Besides offering an opportunity for individual distinction in a new field, it helps to remove the barriers of exclusiveness, and to increase habits of social intercourse between class and class. In ancient times it was the fashion for each handicraft to have its patron saint. Why should not each handicraft now have its patron peer to maintain its real dignity and right to estimation, as well as to vindicate its utility and value?

HEMEL HEMPSTEAD WATER-WORKS.—The dimensions of boiler given in our notice last week should be reversed: the boiler is 21 ft. long and 6 ft. in diameter.

NEW STAINED GLASS WINDOW IN ST. PAUL'S CATHEDRAL.

OUR readers may remember that as long ago as 1861 the committee for the completion of St. Paul's accepted the offer of painted windows from Mr. Thomas Brown and the Drapers' Company, giving the former as a site the west window and the latter the central east window. The means that were then taken to obtain a good result were elaborate and remarkable, and deserve to be recorded. As a first step, the late Mr. Charles Winston was invited to join the committee. By his advice Mr. Penrose, the Cathedral surveyor, examined the Munich glass recently put up in Glasgow Cathedral. This led him to report favourably of its fitness for St. Paul's; and the committee agreed that negotiations should be commenced with Herr Ainmiller relative to the intended works. In the ensuing summer Mr. Penrose, after going to Belgium, proceeded to Munich to confer personally with Ainmiller. In the first instance there was a difficulty as to the artist who should be employed for the designs. Baron Hesse, who was first invited, declined on account of age and occupations, and some other difficulties presented themselves at Munich; so that Mr. Penrose thought it best to go to Dresden to consult Professor Schnorr, as to the artist who should be employed. From him he obtained much information, and also an indication that the professor himself might possibly not be indisposed to undertake the designs. The committee fully recognized the importance of engaging an artist of such high reputation, and Professor Schnorr was invited to make the designs. The subjects for all the windows contemplated were arranged and approved by the Dean and Chapter; and the surveyor, in concert with Mr. Winston and the Rev. J. L. Petit, prepared instructions for the general distribution and scale of the figures and designs for the architectural accessories. During this period of the work Mr. Winston and the surveyor went to Glasgow that they might prepare their instructions with the Munich glass in view, and also have the assistance of Mr. C. H. Wilson, without whose antecedent work in preparing the Munich glass-painters to trust to Mosaic glass-painting, and dispense with the use of enamel colour, success would have been more uncertain. Professor Schnorr then met the surveyor at Brussels, that the matter might be talked over in sight of the windows of St. Gudule, when he so fully realized the effect of those master works that he spontaneously put altogether aside studies on which he had already devoted much labour, and made other designs. On the receipt of these they were drawn on glass and studied in respect of scale, chiaroscuro, and colour, on the large model of St. Paul's recently exhibited in the Royal Academy, and many modifications, in detail, were proposed and accepted by Schnorr. Various improvements in the architectural accessories also suggested themselves, which were then embodied in the enlarged drawings prepared by the surveyor for this part of the work. In addition to the above-mentioned elaboration of the designs, Mr. Winston was busily engaged in preparing Herr Ainmiller for the use of a better material than he had employed at Glasgow, and the effect of his instructions seems to be apparent in the window now set up. Ainmiller, too, we must add, had been invited to an interview with the surveyor at Brussels, at which Mr. Winston was also able to be present, after which some of the finest cinque-cento works in France were visited.

The window now set up is at a great height from the ground, and when seen from the nave nearly one-third of it is cut off by a projecting gallery. To provide for this, the design is in two stories, the lower at the bottom, a colonnade of three openings (with figures in them) carrying a sort of attic at such a height that the upper picture is seen complete from most situations. This represents the Conversion of Paul, who lies prostrate in the foreground. On the left of the spectator a Roman soldier, bearing a flag, bends over him alarmed, and on the right two other figures, one of them very vigorously drawn, restrain the horse from which Paul has been thrown. Above him is a figure of Christ, with hand raised, as at the moment of uttering the well-known adjuration. The Saviour stands on clouds, with a kneeling cherub on each side of Him, and under the centre opening of a tripartite triumphal arch, with Corinthian columns and pediment, the entablature breaking round the capitals of the columns, and the tympanum adorned with an eagle. The side openings of the structure have straight heads: these are hung with green garlands, and on each stands a cherub with flag. The design, as a whole, reminds one a little too strongly of some eighteenth-century title-pages, the likeness not being lessened by the staring letters V and R under crowns in the upper corners. The large ugly iron window bars left in do not improve it. There is much dignity in the figure of Christ, and excellent drawing in parts, though we cannot let this praise apply to the legs of the soldier with the flag. The colour is much more solid than in many of the Glasgow windows: the most brilliant piece will be found, —at any rate in the afternoon,—in the centre group of the lower picture.

With every willingness to congratulate the authorities of the cathedral on their acquisition, if we be asked if it were necessary to go out of England for it, we should unhesitatingly answer no. If one of our best artists had been called in to prepare the drawing, as was done in Germany, and the same elaborate pains taken in other respects, the result, we are much disposed to believe, would have been a better window. Whether by this process the cost of the English window would have been made greater than that of the German one we have yet to learn.

Another spandrel under the cupola of the cathedral is being filled in with a mosaic picture.

THE SANITARY ACT, 1866.*

AN edition of the Sanitary Act has just been issued, dedicated to members of municipal and local bodies who are charged with the administration of the laws relating to public health in England. It is profusely supplemented with both legal and sanitary information by Mr. R. C. Austin and Dr. Hardwicke. The Act is divided into four parts, which contain sixty-nine sections, out of which our authors pick those which refer to provisions of a novel and interesting character. Mr. Austin at the foot of each page gives notes, which contain references to other Acts bearing upon the subject, and other legal information. And Dr. Hardwicke's contribution follows the Act in a series of short chapters on the subjects enumerated on the title-page. The latter suggests the formation of a code of sanitary law, which is to consist of a revision, amendment, and consolidation of the whole of the laws already passed, the Public Health Act of 1848, the Local Government Act of 1858, and the Metropolis Local Management Act of 1855 forming the basis upon which they are to be reorganised, this being a similar scheme to that recommended by the standing committee of the health department of the Social Science Department, assembled at Manchester in October. He further calls for centralization of powers, and a new appointment of the duties which are now divided between the National Registration Office, the Ordnance Survey, the departments under the Secretary of State, the Board of Trade, the Poor-law Board, the Local Government Office, and the Privy Council. He advises that Parliamentary blue-books should be circulated among officials engaged in local duties in remote places, for, as they are now printed exclusively for members of the senate, their contents would be unknown except in their circle if it were not for occasional mention by the press. He then proceeds to state his conviction of what the duties of each department should be. The Local Government Board he would entrust with the management of all matters relating to drainage, sewerage, water-supply, gas-works, public roads, parks, and gardens, baths and wash-houses, and cemeteries; and he commends the French example of assistance given to local bodies by the collection of information and plans relating to public works. District Boards of Works he would entrust with much extra power of jurisdiction in the administration of works connected with drainage, of rivers, swamps, and lowlands, the construction and maintenance of bridges, canals, and public roads. The members of such Boards, he wisely advocates, should be chosen from substantial and intelligent classes, and assisted by a suitable staff of officers. He considers the Metropolitan Board of Works a good sample of a Board whose operations are spread over a large area, and that its usefulness would be still further increased but for the jealousy of vestries and other small bodies, which still claim power to drain, pave, light, water, and cleanse the highways: if it were not for this want of united action it would be a model of efficiency. Local Boards or corporations would still have to manage the poor, schools, hospitals, water, gas, public baths, highways, markets, and fairs. Concerning specially qualified officers for the administration of sanitary laws, he proposes that the Government should institute an examination, under the auspices of the Privy Council, or Civil Service Commissioners, or entrust the universities and medical schools with powers to confer a degree or other certificate of proficiency for employment by the State. Throughout the work the doctor strenuously urges the importance of the science and practice of preventive medicine, and advocates various other essentials so often, by us, insisted upon.

The chief merit of this edition of the Act lies in its special adaptation to the classes entrusted with the responsibility of making provisions for the public health. To such we recommend it as a condensation of much of the general information now current upon this subject. We will say that it is proposed to establish a village, or town, or temporary hospital. Dr. Hardwicke informs those concerned what are the essentials they must strive after, where they will find the best additional information upon the subject in hand, and the importance of architectural skill and experience in the erection of the necessary building. He urges that national or district hospitals have as just a claim upon the county in which they are situated as prisons and asylums. About 3,000,000 persons are among us in a sick or dying state, who are too poor to provide medicine and attendance for themselves, and he rightly contends that the cost of ministering to these should be equitably equalised over the kingdom, and not made local charges. One or more large hospitals, in suitable districts, he would organize, where the poor could at all times receive medical, surgical, and midwifery assistance, and to these he would add small village hospitals for convalescent, paralytic, and incurable persons. No less than sixty of the latter, built after the model of those at Crawley and East Grinstead, were erected during the last year, and were filled with patients, some of whom were supported by their friends or by sick-clubs, and others by the guardians of neighbouring unions, at a charge of from 3s. 6d. to 10s. weekly. The doctor would have such institutions provided with flower-gardens, shady walks, and resting-places for the old and infirm, and in every way made as sanitary, cosy, and attractive as it is possible their associations would permit. If we read aright, he would procure for the poor in every county a staff of physicians and surgeons, on which should be enrolled the ablest men in the provinces, and supplement this incalculable boon with a system of nursing based upon the generous, passionate enthusiasm with which ladies take up works of charity. May his shadow never be less!

Lord Shaftesbury once said, the poor-rates might be reduced at least 2,000,000*l.* per annum by placing our large towns under sanitary conditions. How much more might be saved, and how many lives might be spared, should all the dominions of her Majesty enjoy the same blessing, would require a long calculation.

* The Sanitary Act, 1866, with notes, statutes, &c. By Robert Cecil Austin, of Gray's-inn, Barrister-at-Law. Together with copious notes and commentaries on Public Health and the Sanitary Laws of England, containing chapters on Public Health and Sanitary Legislation, and Suggestions for a new Code of Sanitary Law. By William Hardwicke, M.D., Deputy Coroner for Central Middlesex. London: Nicholls, Brothers, Frederick-street, W.C. 1867.

ARCHITECTURE IN THE ROYAL SCOTTISH ACADEMY.

THE exhibitions of the Royal Scottish Academy, occurring as they do at a season of the year when the sun strives to gain the ascendency over the keen north-east winds which prevail, are a source of great interest to the inhabitants of Edinburgh. The galleries are, indeed, the fashionable lounge and rendezvous, and are only deserted when Sol obtains the mastery over Boreas. The present exhibition, which opened on the 16th ult., is generally considered one of the best that has occurred for some years past, and there are more pictures of importance than usual. As is invariably the case, many of the pictures are familiar to the London public, having appeared at the last Royal Academy Exhibition; amongst these are works by Landseer, Phillip, Grant, Faed, Millais, Ballantyne, and others; and several productions of foreign artists still further enhance the interest of the display.

Reversing the usual order adopted in classifying works of art, the catalogue begins with the architectural works. We must premise that there is nothing remarkable in these, either as regards originality or peculiarity of design.

No. 1, "Suggestion for the Improvement of Edinburgh," J. D. Peddie, is a large and beautiful drawing, in which "it is attempted to show what may be done, within practicable limits, to improve the view eastward from the Mound, and to heighten its classical expression, at present seriously lessened by the Scott Monument only." The drawing represents the fountain about to be erected in the Prince's-street Gardens; markets on the site of the present station for the north trains; railway-station buildings of the height sanctioned by the recent Act of Parliament; a railway hotel on the site of the present Queen's Hotel; the National Monument completed, and monuments in the form of Greek temples, and statues on suitable sites on the Calton Hill, which is thus made to assume the appearance of a Greek Acropolis. No 22, "Mansion-house for Wm. Laing, Esq.," by J. A. Hamilton, might rather be designated as a villa, for such it is, and not a very large one either. It is in the Scottish domestic style, treated in a free and lively manner. Mr. Frederick T. Pilkington is never commonplace, though frequently wild and eccentric. No. 48, "Presbyterian Church, Cardiff," however, has nothing in excess. The spire is well proportioned, light, and graceful, and the body of the church possesses only so much of Mr. Pilkington's peculiarities as to make it recognisable as one of his productions. No. 29, Pilkington & Bell, is a pleasing example of the modern style of Gothic as applied to domestic purposes: abundance of light is given, and variety is secured without violent contrast. 47, "North-west View of Castlemilk, Dumfriesshire, the seat of Robert Jardine, esq., M.P., now in course of erection," by David Bryce, R.S.A., is a mansion in the Scottish baronial style, and is by no means one of Mr. Bryce's happiest efforts: the general effect is dull and heavy without being picturesque; and it abounds in detail which is manifestly false and extraneous. Mr. Bryce also exhibits "Sketch of a Monument to the late Miss Catherine Sinclair" (No. 63). It is in the form of an Eleanor's Cross. 65, "Selected Design for proposed Cathedral Church of St. Andrew, St. Andrew's, from the South-East," Robert Anderson. This design has none of the crudeness displayed in those exhibited by Mr. Anderson last year; he has now discovered that truthfulness and moderation are quite compatible with elegance and grace. The style is thirteenth-century French, upon an English foundation.

98, "Perspective of a House designed on an angle of 45 deg., cubic proportion." 230, Ditto, at an angle of 60 deg., James Gowans. Mr. Gowans seems to have an idea that all designs should be founded on mathematical principles. For himself he built a large and very peculiar house, upon the 2-feet square principle. Apart altogether from theory, the designs exhibited are pleasing enough, and should they ever be realized in stone, we doubt if any one, unapprised of the architect's purpose, would discover the subtilty underlying the outward semblance.

89, "Interior View of Church, Compiègne;" 167, "Exterior View of the same," R. Thornton Shiells. The English visitor to Compiègne can hardly fail to see that this church is not the work of a French architect. The style is pure Early English, and the arrangements are such as are usual in small parish churches. A well-proportioned design is somewhat marred by the undue prominence given to a coat of arms over the doorway in the spire. Mr. Shiells also exhibits "Design for the United Methodist Free Church, to be erected at Park-place." This design is of the Early German type. It has a slated broach spire in the centre of the main gable, with gablet lights in the angles. The side elevation is tame and flat; but from the position the church will occupy, it will not be much seen. The principal front, however, is effective.

117, "View of Craigmount House," and 193, "Design for the Roseburn Free Church," Robert R. Raeburn. Mr. Raeburn's studies have evidently not gone further than "Batty Langley:" the house has pepper-box turrets perched on the highest angles of a tower, and the church is one of those productions which figured thirty or forty years ago as being built "after the Gothic manner."

118, "Grayfriars Parish Church, Dumfries," and 144, "Lanark Parish Church," by John Starforth, are good specimens of pure English Decorated. The spires have a family likeness, are well proportioned, and set to the main structure. There is a slight weakness observable in the doorways, however.

127, "New Magdalene Asylum, Dalry," James W. Smith. Justice has not been done by the draughtsman to a very meritorious building in the style of the country.

162, "Netherby, in course of erection for Mr. Wm. Roberts," by James C. Walker, is weak and ineffective, having more of the appearance of an old house patched up, than of an entirely new one. The detail is of a heavy Renaissance sort, used in the later French château.

182, "Design for proposed Churches," John Honeyman, jun. We believe it is proposed to erect this group of churches in the city of Perth. Mr. Honeyman has made them assume the outward semblance of a cathedral, and as such his design is good; but how far the fundamental conception of making several small churches assume this guise is correct is another matter. 195, "Design for English Church, Campbellton," Campbell Douglas. A simple, severe, and unaffected piece in thirteenth-century style, consisting of west tower transepts with double gable and chancel. 229, "The General Hospital, Toronto," William Hay, is a large square Gothic structure, with a tower in the centre of the principal façade, and smaller towers at the angles. The building assumes importance from its size, but there is nothing worthy of commendation or of censure in the design.

There are many designs to which we have made no reference: they are mostly "skyed" so that we cannot examine the detail, and many of them are very washy in colour and ineffective as drawings.

SANDERSON'S "GRAPHICE," 1658.

THERE is a thin folio of the year 1658, "London, Printed for Robert Crofts, at the signe of the *Crown* in Chancery-lane, under Serjeants' Inne," with this attractive title: "Graphice. The use of the Pen and Pensil. Or, The Most Excellent Art of Painting: In Two Parts. By William Sanderson, Esq." The book is scarce, and is too often found *without* "the Picture of the Author," (as is the case with my copy) a marvellous head of the author, by Faithorne, after Soest.

I have something new and suggestive to communicate about this thin folio.

The volume was a favourite with Horace Walpole, who in print, speaks of it thus:—

"Sanderson, an intelligent writer on Art,—his 'Graphice,' though in tortured phrase, contains both sense and instruction."—*Walpole's Works*, iv., 34.

"Sanderson in his 'Graphice,' an affected but sensible book."—*The same*, ii., 231.

Some account of Sir William Sanderson may be found in Granger's Portrait Biographical History. He published several "Histories"—now in little esteem,—and in his prime was secretary to the first Duke of Buckingham of the Villiers family. In this capacity we may fairly assume that he had a hand in the formation of the far-famed gallery of pictures collected by the duke.

His wife, Dame Bridget Sanderson, was "Mother of the Maids,"—*i. e.*, superintendent of the Maids of Honour attached to the court of Catherine of Braganza, queen of Charles II.,—an office demanding great discretion and great control of temper. To my thinking, Dame Bridget must have looked not unlike the Duenna in Leslie's famous picture of "Sancho and the Duchess."

Now for what I have to tell.

Among the Harleian MSS. in the British Museum (No. 6,000, 43 f.) is a thin folio with the following title:—

"An Exact and Compendious Discourse
concerning the Art of Miniature
or Limning, the Names, Nature,
and Properties of the Coullours,—
the Orders to be observed in
preparing and using them
both for Picture by
the Life, Landscape,
and Historyes."

The compilers of the Harleian catalogue do not give us the name of the writer; but my opinion (long since arrived at, and now all but confirmed) is, that it is in a great degree the original of Sanderson's affected but sensible "Graphice."

Here are a few extracts, and in the writer's own spelling:—

1. The experience whereof I saw both in the Vatican Library at Rome and in the villa of Cardinal Burghese (1ᵇ).
2. And this was the manner of our late excellent Mr. Nicholas Hilliard in making his satins (3ᵃ).
3. Insinuated in the epitaph of your late countryman and my dear cozen Mr. Isaack Oliver (4ᵇ).
4. An ordinary playing card (4ᵇ).
5. The best abortive parchment (4ᵇ).
6. The rude and homespun apparel of my upland language (6ᵃ).
7. For the ground behind the picture it is comonly blewe or crimson, somewhatt like a satten or redd vellvett curtayne (much in request wᵗʰ ould Mr. Hilliard) (7ᵃ).
8. In the gallery of my most noble Lord the Earle of Arundell, Earle Martiall (8ᵃ).
9. The working hereof I shall tell you being taught me by ould Mr. Hilliard (9ᵃ).
10. And this secret of making liquid silver I had from Mr. Hilliard (9ᵇ).
11. In a word the most generall and absolute rule, and universally to be observed in landscape, was taught me in the most excellent mʳ in this kinde now dwelling in Rome, Paolo Brill, whose delightfull works are many of them extante in printe, and graven by Raphaell and John Sadler, besides many other very rare pieces of his owne hand, wᶜʰ I have seene in fresco and in oyle both in the Palace Montalto by Sᵗᵃ Maria Maggiore, Cardinall Bentinaglio on Monte Canallo, and in the church of Sᵗᵃ Cæcilia Transteuerse (10ᵇ).
12. His [P. Brill's] observation was only this:—Only remember that both in your leaves and trees, rivers, and farr distante mountagnes, you affect to expresse a certain aereall morbidezza, as Paolo Brill caules it, or delicate softenes, wᶜʰ is the next remarkable grace and ornament to your worke (11ᵃ).
13. Those greate and feerfull rocks wherein Momper,* of Antwerpe, soe pleases himself as noe piece passes his hand without them (11ᵃ).

Sir William Sanderson died *intestate* (I am sorry to say) in the year 1676, aged 86, and was buried in the north transept of Westminster Abbey, where his grave-stone is still to be seen; and where, on the north wall, is a clever bust of the quaint old writer,—the sculptor's name unfortunately unknown.†

Prefixed to the "Graphice" are two copies of verses, by Flatman,—a poor poet but inimitable miniature-painter; and a head of the author, aged 68, by Faithorne, after Soest, in Faithorne's very finest style. A copy of the "Graphice," with the portrait, is a rarity that commands a high price.

One more extract from the MS. and I have done. The following passage in the MS. may be *collated* with p. 73 of the printed volume. That the MS. is by Sanderson, or had been seen by Sanderson, I have no doubt whatever:—

"But that which is (*inster omnium*) a 'History of the Buriell of oʳ Sauioʳ Jesus Christ,' done uppon a large table of fine abortive parchment, pasted upon a smooth and well-seasoned borde, I think of peare-tree. It is now in the hands of my very worthy cosson, Mr. Peter Oliver, by whose incomparable father, Mr. Isak Oliver, it was begune and allmost finished. It was a piece of the greatest bewty and perfeccion (soe much as is finished) that I think Europe or the world cannot produce, and I believe if Carlo Van Mander, in his 'Duch History of the ffamous Paynters,' had seene this picture or the inventor, his booke of quarto would have growne into a tome with the description."—*Harl. MS.* 6,000 fol. (43 f.), (11ᵇ).

And now for a query. Through what genealogical tree of flesh and blood were Peter Oliver and Sir William Sanderson cousins?

PETER CUNNINGHAM.

THE NATIONAL GALLERY COMPETITION.

THE Committee of Selection, before reporting upon the drawings, in the first instance called in Mr. W. Gardiner, of Montagu-street, to examine them, to see if the instructions had been followed. They had several meetings afterwards, and came to the opinion that there was not one set of designs that could be recommended to be carried out, although in all cases possessing very considerable merit as scholastic drawings. Their report is now in the hands of the printer, together with correspondence between the late and present First Commissioner and Lord Hardinge (their chairman) upon the subject of recommending one of the competing architects to be the architect for the new building. The committee have also submitted suggestions as to the required arrangements for a new National Gallery, which, together with the report, will, we expect, be published in a few days. They have named Mr. Edward M. Barry's design as being upon the whole the most architecturally meritorious for a new building, and Mr. Murray's for an alteration of the present building.

* Of Judocus de Momper there is a very fine specimen at Keddleston Hall (Lord Scarsdale's). See Waagen, iii., 392.

† The following references to Sanderson's "Graphice" may be found in Wornum's edition of "Walpole's Anecdotes:"—Pp. 84, 173, 176, 880, 912.

ALTAR RAILS.

AT the annual meeting of the Norfolk and Norwich Archæological Society, the Rev. G. W. Minns read a paper, by Mr. L'Estrange, upon the subject of altar-rails. The paper commenced by calling attention to the direction given by Archbisop Laud, in 1634, "that the altars were to be railed in and that the floor at the east end of the chancel should be somewhat raised." Details were given of the opposition against this by the Puritans throughout the country, especially in the diocese of Norwich; and the paper went on to say that "In 1704, three churches in Norwich were without rails before the communion-table; but it was principally in remote parishes that they had not been erected. In Taverham deanery, out of sixteen churches, there were only two—Frettenham and Hainford—and in Blofield deanery, out of thirty-two churches, but four without altar-rails; whilst in the deanery of Flegg, comprising only nineteen churches, there were no fewer than eight in which the rails were wanting. There were also other churches in which the rails were misplaced, as at Thwaite and Wolterton. At Hunworth the rails were thrown by at the east end of the chancel; and at Wigton a part of the old one remained, although wrongly placed. There was evidence that some churches were without altar-rails as late as the second quarter of the last century."

Mr. Manning said that at Wiggenhall St. Mary the communion-table was formerly in the centre of the church.

Mr. Fitch, referring to a paragraph in the paper stating that the rails were to be of such a character as to keep out dogs, said that he recollected going to Pakefield Church and seeing a notice to this effect: "Remember to bring no dogs to church."

The Rev. J. Gunn said that in his memory the communion-table stood in the centre of Tunstead Church. He should like to know whether there were any instances in the Roman Catholic period of altar-rails. He believed not.

Mr. Minns replied that there were no such instances.

DRAINAGE AND WATER SUPPLY OF CANTERBURY.

A REPORT on a scheme of sewerage and water supply for Canterbury has been made to the local Board of Health by their engineer, Mr. Pilbrow.

According to this report, Canterbury is in a most deplorable state as regards drainage and water supply. There is no such thing as efficient house drainage. The whole site is surcharged with sewage, and the water supply is pumped from this very site.

"In very many cases the well and the cesspool are in close proximity on the same or adjacent premises, where the practical action daily going on is to put the filth into one hole, and to pump it out, little better chemically, from another in the same or adjoining yard."

No drains or sewers now existing are at all fit or at a proper level to form any part of a new system of sewerage. The present drains and sewers, however, might be used for surface drainage. The separate or exclusive system of sewerage is recommended for adoption, with frequent and free ventilating shafts, the principle of which Mr. Pilbrow claims as of his own introduction about sixteen years ago. The sewers will consist of glazed stoneware pipes, from 8 in. by 18 in. diameter, and oval brick sewers from 15 in. by 22 in. to 24 in. by 36 in., with numerous inspection and flushing shafts. Deodorizing by layers of charcoal in the ventilating shafts is not approved of, as a hinderance to ventilation, and hence promotive of escape into houses through shallow and imperfect traps. Open pipes above the roofs are chosen, as the only safe and sure way to carry off the sewer gases. If irrigation be thought of, the outlet must be below the towns of Sturry and Fordwich, but the land is there too wet, being "half-year land;" the engineer, therefore, does not recommend irrigation in this case, nor the Watford method, from the cost of pumping and other difficulties. His plan is to erect perfect sewage works in duplicate, near to a highway about a mile and a quarter from the city, where the sewage will be subsided and deodorized, and the semi-solid manure sold to farmers, while the supernatent water will pass off by an outlet sewer into the river below Fordwich, free from either odour or colour, on the plan established by Mr. Pilbrow at Uxbridge, where he says it acts satisfactorily, and has paid its own expenses for the last ten years. The estimate for the sewerage works, including outfall, sewerage works, &c., complete, is 18,060*l.*

The water supply is recommended to be taken from the Silver-hole spring, with a service reservoir on St. Thomas's Hill. The supply, it is stated, would be continuous and abundant, and the quality excellent. The cost is estimated at 23,638*l.*, besides 6,000*l.* or 7,000*l.* for the water company's rights, if the supply be taken into the Board's own hands, as is recommended.

COMPETITIONS.

Schools, Ashford, near Staines.—The committee received eighteen designs in answer to their advertisement, and ultimately selected that sent by Mr. John M. Hooker, architect, for execution.

The New Church at Worksop.—In answer to advertisements for plans for the erection of the new church of St. John's, for Worksop, forty sets of plans were sent in. The plans were exhibited in the Corn Exchange, at the charge of 1s. each, the proceeds to go to the New Church Building Fund. Many availed themselves of the opportunity of viewing them.

COMPETITION DESIGNS FOR HOUSES, GREAT YARMOUTH.

THE public have had access to these drawings for some days. There are between eighty and ninety competitors, whose works well fill the Yarmouth Town Hall, and include more than the usual amount of rubbish, with, of course, redeeming features. The design "Comme il faut" is for a terrace of houses so large as to require centre areas; it is rivalled by "Portecrayon" and "Alpha." Of the single villas "Apex" and "Fiat" produce a favourable effect; "Suspense" gives both the single villa and the pair; "Omnia Æternitate," "Valentine," and another "Alpha" may close the list. There is more competition for the semi-detached villas than for either the terrace or the single villa, because in this class two premiums are offered, and only one in both the others. In "Ecce A" and "Ecce B" good drawing commends the design (Mediæval) to notice; "Comfort, Convenience, and Compactness well considered," "Circumspice," "Palmam qui meruit ferat," and perhaps a few others, "Trefoil" or a second "Omnia Æternitate," may be noticed. When will architects give up hawking their wares at quarter-price?

ACCIDENTS.

AN extraordinary accident has happened on the Lancaster and Carlisle Railway, about a mile and a half south of the Penrith station. It appears that as a goods train from the south was passing Yanwath Bridge the axle of one of the trucks broke and threw several carriages from the line. Among these were a powder-van, an iron one, constructed specially for carrying gunpowder, and containing, it is said, about five tons of gunpowder. Shortly afterwards another goods train from Carlisle, and upon the other line of rails, dashed into the overturned vans upon the up-line, smashing the gunpowder van. A fearful explosion immediately took place. The engine and tender of the train from Carlisle were driven into one another, and the driver and stoker were killed, having been blown into the adjacent field, shockingly mangled, and the other wagons of the train were, many of them, shattered to pieces. One effect of the explosion was to set fire to and destroy the train. The permanent way was very much injured, and Yanwath Bridge, which crosses the line at this point, much damaged. The explosion was heard for miles round. At the neighbouring village of Yanwath, the windows and doors of the houses were driven in by the force of the concussion.

At Field Gate, Walsall, Mr. Bradbury, of Birmingham, had been employed to repair a well, and one of the men had descended to insert a kerb to support the brickwork, which was in rather a dilapidated state; but he had scarcely reached the bottom of the well, which is about 70 ft. deep, when the whole of the brickwork, and a large quantity of earth fell upon him and killed him.

A death has occurred at Sheffield from falling on a chisel. Deceased was a joiner and cabinet-maker. He was going along Fir Tree-land, Sheffield, and fell, when a chisel which he had in his side pocket pierced his body, severing one of the main arteries.

An explosion of gas took place lately at Hillhousefield, North Leith. One of the Edinburgh and Leith Gas Company's men was searching for an escape of gas, which had been complained of by the inhabitants in the neighbourhood for several days. He suspected the escape was proceeding from a pipe close to the common sewer, and with the view of ascertaining whether the gas had accumulated in the sewer, he opened one of the man-holes and stupidly put down a light. Immediately on his doing so, an explosion took place. He was thrown against the wall on one side of the street, and severely injured. His "bonnet," or cap, was thrown over a three-story house, and was found in a garden behind. The explosion must have damaged the sewer for a distance of between 90 and 100 yards, for the paving-stones above it for that space westwards are loosened, and the iron frame and cover of another man-hole at that distance were torn up, as were also the causeway stones around the covers opposite to this part. Several windows of a dwelling-house were broken, and the house itself shaken to its foundation.

At Dartford, in Kent, contractors' workmen have been of late engaged in forming the extension line of railway leading from the South-Eastern line into Mid-Kent. To cross the public road it was found necessary to have a temporary wooden bridge thrown over the thoroughfare. The bridge was finished, and a metal tramway was laid on it. Upon this tramway was placed a travelling-crane. The men were lifting an iron girder by it, weighing several tons, in order to span the road. Suddenly the bridge swayed, first to one side and then to the other, and, without allowing a moment for escape, the structure fell, causing the traveller to topple over with the men on it. Some fell clear of the ponderous machine, but were overtaken by the portions of the fallen materials of the bridge, and became embedded in the *débris*. One man was found to be dead, and three others seriously, if not fatally, injured. One of these has since died.

EXHIBITION MEMS.

FROM the Potteries a large number of works are going to the Paris Exhibition, especially from Messrs. Minton's and Messrs. Wedgwood's. We can scarcely help regretting that most of the principal objects are designed, modelled, and painted by foreigners.

We do not hear good things of the allegories of London, Dublin, Edinburgh, Liverpool, Manchester, &c., proposed to be put up as window blinds in the English compartment.

The English Commissioner at the Exhibition has announced that from 45,000 to 50,000 English workmen will come to Paris during the summer, and will each receive from their several committees 10s. a day for their expenses.

The Palace itself occupies an area of 140,184 square yards, with a circumference of 1,400 yards. Its shape, our readers know, is that of a parallelogram terminated at both ends by two circles, having for diameter the width of the parallelogram itself.

French products will cover a space of 61,000 square yards. The English products will occupy 21,653 yards, and those of the United States of America, 2,900 yards. It will, of course, be necessary to add thereto the space occupied in the Annexes of the Park; and which are of considerable importance.

The specimen of English Domestic architecture in the park attracts great attention: the high-pitched roof and gables, the exhibition of the timber work on the surface, the covering of tiles of variegated form and colour, from black to light-red, and, more than all, the stacks of ornamental chimneys, constructed of moulded cut bricks of various tints, which, like the tiles, are of English manufacture, induce numerous inquiries as to the country of which the style is native. Another surprise of the same kind is reserved for our friends abroad in the form of a bay of the new South Kensington Museum, the materials for which are now being prepared under the superintendence of the son of the architect, the late Captain Fowke. This specimen structure will be of large dimensions, about 60 ft. in height, and of nearly the same width,

and will convey a good notion of our working in brick and terra-cotta.

The courts of Morocco and Tunis are already blazing in gold and colours, as characteristic, and to us as novel, as the decorations of their neighbours—Turkey, Egypt, and the Danubian Principalities; the whole together forming a remarkable contrast with the chaste, solid woodwork of the Russian court close at hand.

In the park the structure now erecting for the Imperial Commissaire-Général begins to present an imposing appearance; it is composed of solid oak framing, put together in divisions before being mounted on a rusticated basement of artificial stone (*Béton aggloméré*).

The Sultan's mosque and the three buildings of the Viceroy of Egypt now make an imposing appearance. The great temple, in the style of the epoch of the Pharaohs, is being covered within and without with the well-known emblems of the period, and with copies of ancient mural paintings in brilliant hues.

The pavilion of the Bey of Tunis, not far removed from the Turkish and Egyptian group, is a very large building, three stories in height, with a façade capped by two small cupolas, the entrance to which is by means of a bold double flight of steps, in the form of a horse-shoe.

The Art of Music is now to be represented in the Exhibition, in the triple point of view of composition, execution, and history. Prizes are to be awarded to two musical compositions, and a sum of 10,000 fr. may besides be awarded, on the proposition of the committee, to the author of the work which shall be judged worthy of being hereafter introduced as a hymn in international solemnities. A special committee will organise a series of concerts, in which a small number of eminent artistes will be convened to perform the most remarkable musical compositions appertaining to various epochs and different countries.

The *Great Eastern* is now nearly ready for her new duties—that of conveying passengers from New York to Brest for the Paris Exhibition. She has undergone very extensive alterations. The space last occupied by the cable tanks has been fitted up with cabins, berths, and state rooms for passengers. These apartments, numbering over 500, are lofty and convenient. There will be berths for 3,000 passengers. The deck saloon is a splendid apartment, 140 ft. long and 24 ft. wide, and will admit of 500 persons dining together. There are several smaller saloons. Altogether 2,000 persons may dine at once. The total outlay of this refitting will of course be very large.

THE NATIONAL GALLERY.

THE director of the National Gallery has just issued his annual report, from which we learn that five pictures were purchased during the past year, at a total cost of 8,160*l*., against 17,277*l*., the amount expended in 1865. The pictures acquired were—a "Madonna and Child," by Lippo Dalmasio, 400*l*.; "Rhetoric" and "Music," two companion pictures, attributed to Melozzo da Forli, 600*l*.; a "Portrait," supposed to be a "Contessa Palma" of Urbino, by Piero della Francesca, 160*l*.; and "Christ Blessing Little Children," by Rembrandt, 7,000*l*. Five pictures acquired in previous years were placed in the gallery, and two pictures and one bust were presented to, and accepted by, the trustees. The presentations are portraits of the Rev. George Hoddesforde, and Mr. J. C. Bamfylde, by Sir Joshua Reynolds, presented by Mrs. Martha Beaumont; a marble bust of Mulready, by Weeks, presented by friends of the deceased artist; and "The Remorse of Judas," by Armitage, presented by the painter. Fourteen pictures have been protected with glass, and ten have been repaired, cleaned, and varnished. Curtains have been placed before the Turner drawings at South Kensington, to protect them from the action of light during the time they are not publicly exhibited. We may remark that the process of cleaning, or, rather, "refreshing," to use the inventor's word, introduced by Professor Pettenkofer, of Munich, seems to have been abandoned by the trustees. It was first tried about three years ago, and a very favourable opinion of the process was expressed by the late Sir Charles Eastlake in his report for 1864. Since that time, however, nothing seems to have been done with it.

The number of visitors during the year was 1,531,976, showing a satisfactory increase on the years 1864 and 1865, when it amounted to 1,366,369 and 1,387,254 respectively.

The popularity, amongst students, of a particular picture, may, we think, be fairly estimated by the number of times it is copied. During the last year the favourite amongst the old masters was the "Garvagh Raffaelle," as it is called, representing the Madonna with the infant Christ and St. John. Our readers may remember that it is a comparatively recent acquisition, having been placed in the gallery in July, 1865. This picture was copied twelve times, and eight copies were made of Velasquez's portrait of Philip IV. Next comes Vandyck's portrait of C. Vander Geest, better known perhaps as the "Gevartius" portrait, which was copied five times. This is an old-established favourite, and for the two previous years had stood at the head of the list. Murillo's "St. John and the Lamb," "Portrait of Rembrandt," by himself, and Ruysdael's "Landscape with Ruins," were also each copied five times. There appears to have been a slight falling off in the popularity of the well-known portrait of Andrea del Sarto, which was only copied three times against six to eight times in 1865, and 1864 respectively. The exquisite "St. Catherine," by Raffaelle, has not appeared in the returns of pictures most frequently copied for the last two years. Amongst modern pictures, Reynolds's "Heads of Angels" was copied nine times, "Age of Innocence" (the favourite during the two preceding years); Dubuf's "Surprise," and Dyckman's "Blind Beggar," each seven times. The total number of copies made from pictures belonging to foreign schools, was ninety-seven, the number of pictures copied being forty-six, by twenty-seven different masters. Of the British school, 121 copies were made of forty-nine pictures by twenty-five masters. It will be noticed that, with the exception of the absolute number of copies produced, the figures in both cases are pretty nearly the same.

CHOLERA AND VENTILATION.

THE Committee of the Philadelphia Almshouse call attention to the breaking out of cholera at the almshouse in the present year, and to the apparent effect produced by thorough ventilation from the floor, in its prevention and final disappearance from the Institution.

"The disease first attacked four patients and a nurse in one of the wards of the Women's Hospital, which ward, upon close examination, was found to be imperfectly ventilated. This was at once remedied, after which there were no more cases in the hospital.

In the insane department for females, the cholera occurred in several of the wards; these were ventilated by the old plan, from the ceiling or by windows and doors, as the ventilation in this department was not yet perfected, but on the appearance of the disease strong efforts were immediately made to push it forward, and it is a remarkable fact that as soon as a thorough ventilation from the floor was established, the cholera disappeared from the Institution. It may be proper here to remark, that heat was introduced into the wards about two hours daily, during the prevalence of the disease, and it is also worthy of note that in no part of the almshouse, although crowded, was there any cholera where the ventilation from the floor was thoroughly perfected."

According to the *Journal of the Franklin Institute*, similar results to those mentioned in this report were observed in the case of the New York Poorhouse, on Blackwell's Island, "where the cholera, after showing itself with great virulence at first (some one hundred cases at a time), was entirely extirpated in five days by a judicious system of ventilation, combined with corresponding treatment, such as exercise in the open air and the like."

THE LONDON WATER-SUPPLY QUESTION.

A PAPER on this subject has been read by Mr. Thomas Beggs, at the Society of Arts, Adelphi. Mr. Beggs urged no special source of supply, but advocated the constant system.

"In all [he remarked] about 150 towns in Great Britain are enjoying the benefits of a constant water supply. Then why not London? It is said that a constant, which means an unlimited supply of water, could not be sustained from the excessive waste that would ensue, and that all the available resources at command would be exhausted under a waste going on night and day. This has been said in relation to every town, when a constant supply has been proposed. But I have partly answered that by showing the number of towns where the constant supply has been carried out; and it can be further answered by showing that the waste has been much less in the towns where a constant supply has been introduced than in those where an intermittent system prevails. If the difficulties are met with proper appliances and with determination, they will disappear as they have done in other cases. So far as quantity is concerned, we have at present sufficient, if it be properly economised, to supply the requirements of London.

The subject is, however, generally argued as if the supply of London was insufficient in quantity and imperfect in quality. To remove these evils a number of schemes have been proposed, and upon each of them have been expended a large amount of time and no inconsiderable expense. Each of the schemes has its supporters, and the gentlemen who have prepared them are well able to expound and defend them. They propose to bring a supply of water sufficient to supersede all the present sources of supply; and these schemes come recommended to us as the proposals of men of high professional reputation. I will only name a few. Mr. Homersham proposed to supply London from the neighbourhood of London itself, and a proposal was made for a company—the London Watford Spring-Water Company; and a Bill was prepared, and read for the first time in the House of Commons, on February 6th, 1850. Mr. Bateman proposes to supply us from a source 183 miles away—from the sources of the Severn. Messrs. Hemans and Hassard take us a still greater distance, and propose a supply from Ullswater, a distance of 240 miles away; and Mr. Bailey Denton proposes to obtain a sufficient supply from the Thames watershed. Whether any or none of the plans are adopted, the discussion which must ensue will be of immense advantage in bringing every phase of the question before the great body of consumers. I speak with the greatest possible confidence when I say that I believe a constant supply of water in London is perfectly practicable, and that it might be brought about with a much less consumption of water than that which is now consumed. Improvements in habits, and consequently in morals, have always followed improved dwellings and improved sanitary arrangements, and this is the great encouragement to perseverance in a good work."

ARCHITECTURAL EXHIBITION SOCIETY.

ON the 1st inst. the annual general meeting of this society was held, at 9, Conduit-street, when the report and balance-sheet, to which we drew attention in our last, were read and adopted. There can be but little doubt that, if rightly conducted and the profession generally will support it, the annual exhibition may be made useful and attractive, not only to the profession, but to the public at large. The Society proposes this year to add to the attraction of the exhibition by getting artists to exhibit their designs and sketches for fresco and other works more particularly connected with architecture, and by a series of sketches from ancient architectural examples. We repeat that all drawings, &c., for the forthcoming exhibition must be sent to the Galleries by the 6th of next month.

ARCHITECTURAL EXHIBITION.

SIR,—If "the amount paid by the public for admission was very small" last year, would it not be wise to try the effect of reducing the admission fee, and even of opening the exhibition free on certain days, so as to induce the public to go and see it? E. W. T.

THE POSITION OF TOWN SURVEYORS.

WE have received letters from three surveyors in different parts of the country, setting forth the manner in which they have, individually, been treated; but as the statements are *ex parte*, and would provoke replies, for which we could not find space, we must refrain from printing them. One writer, late the surveyor of a town in the south-west of England, who had left another town to go thither, with very strong testimonials, makes out a particularly hard case, having been dismissed, as he asserts, through an individual enemy on the Board. The letter thus concludes:—

"Cannot, under these circumstances, some means be devised by the legislative power of this country to protect the officers whose zeal and assiduity administer and carry out the provisions of one of the most beneficial Acts of Parliament ever passed for the purpose of securing and promoting the public health, from being dismissed in a summary manner? The present system 'destroys confidence, and civil engineers will despise such appointments rather than compete for them; though they ought to be posts of honour, as well as of emolument.'

In the 1848 Public Health Act there was a clause to prevent surveyors from being dismissed without just and sufficient cause, and the consent of the Home Secretary being obtained to such dismissal.

The conduct which the writer has had to submit to leaves him with a pecuniary loss, damaged health, and a stigma upon his professional character. Is there no remedy for this wrong? There is.

On the 15th of December, 1866, the case, Wilson *v.* The North Staffordshire Coal Company, was tried in the Court of Common Pleas, for wrongful dismissal. Damages, 500*l*.; and salary due, 6*l*. 0s. 8d. Costs to be paid by defendants."

THE NEW SUPREME COURT, AUCKLAND, NEW ZEALAND.—MR. EDWARD RUMSEY, ARCHITECT.

THE NEW SUPREME COURT, AUCKLAND.

OF the public buildings now in course of erection in Auckland, New Zealand, under the Public Buildings Commissioners appointed by the General Government some time ago, the Supreme Court, Post-office, and Custom House are now fast progressing.

The Supreme Court, the subject of our illustration, is in a forward state. The building is situated on a reserve in front of the old House of Representatives, and presents a prominent feature on entering the harbour. It has four fronts. The one facing Waterloo-crescent and the Government House is formed by an arcade of three pointed arches springing from clustered shafts with carved caps and bases which forms the principal entrance; over which will be the library, a handsome room 45 ft. by 27 ft., entered from the arcade by a circular staircase terminating with an octagonal turret. Above the library and entrance will rise a tower 60 ft. high, surmounted by a leaden roof with dormer.

From under the tower is entered a vestibule or large ante-hall, 50 ft. by 29 ft., which will be devoted to the convenience of witnesses and other persons waiting on the court, and which leads to the chamber of the Supreme Courts, 60 ft. by 30 ft., occupying the centre of the building, having an open panelled timber roof, and surmounted by a lantern. The court is surrounded by a corridor 6 ft. wide, connecting it with the judge's chambers, and suites of rooms for the judge, jury, and witnesses, and rooms for the accommodation of counsel.

The registrar's and sheriff's departments will be on the right and left, entered from corridors on either side of the building.

On the upper floor will be an insolvent court, and suites of offices in connexion with the establishment.

The natural slope of the ground has enabled the architect to introduce a basement story at the north end of the building, which he has subdivided into cells and rooms for prisoners awaiting their trial.

The extreme size of the building is 145 ft. by 97 ft. It is being built of pressed bricks from the yards of Mr. Holland, of Newton, with Bath stone dressings. The bricks are of a superior character to any before used in Auckland; they are of a reddish and neutral tinge, and have a pleasing mottled appearance in the distance.

The amount of the present contract is 23,777*l.*, which comprises the entire building with the exception of the internal fittings and finishings, which will cost about 6,000*l.* more.

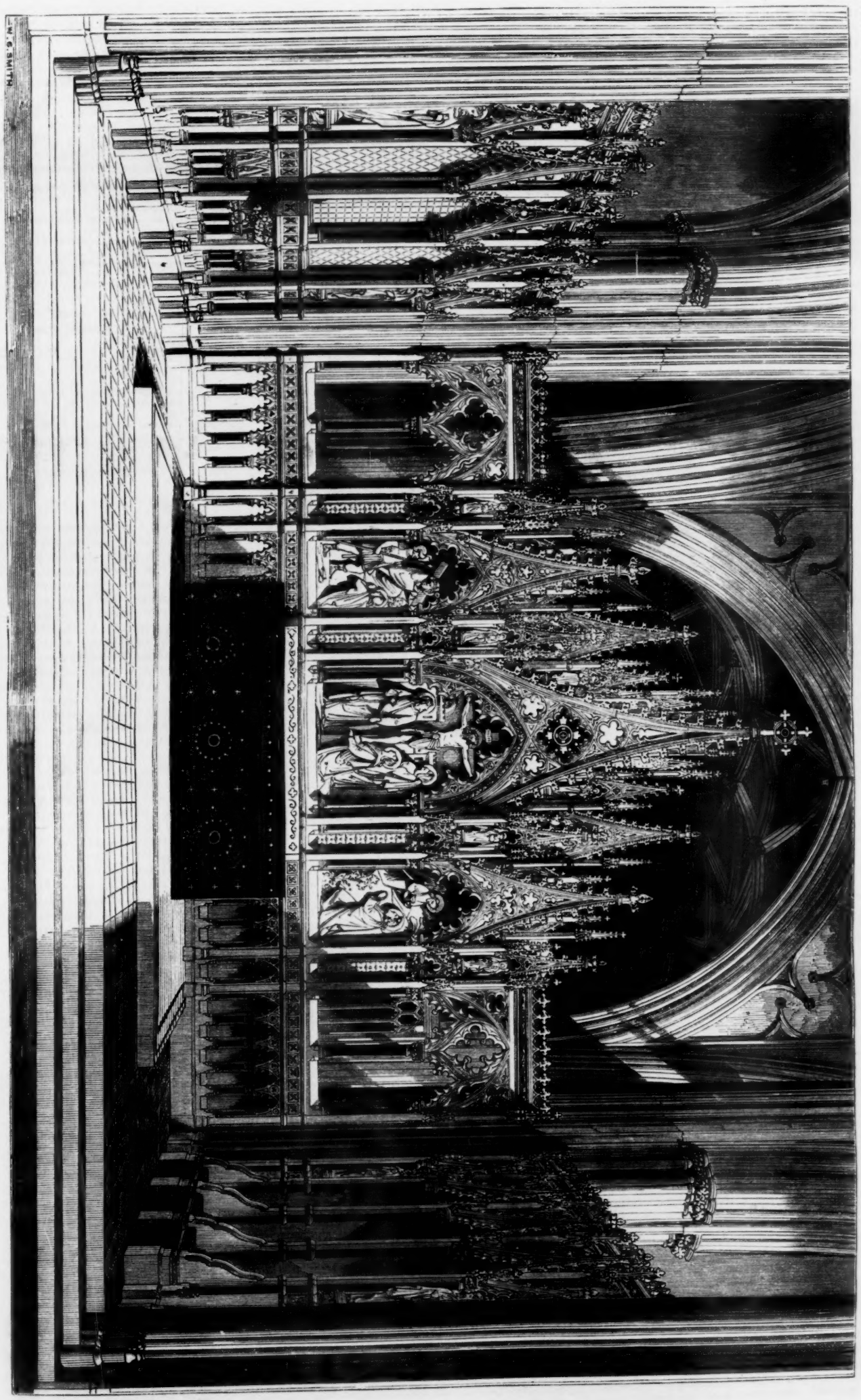
The building is being erected under the superintendence of Mr. Edward Rumsey, architect, of Auckland, who took the Royal Academy gold medal some time ago; and the contractors are Messrs. Amos & Taylor, late of Melbourne.

PROPOSED REREDOS AND SEDILIA; CHURCH OF ST. MARY REDCLIFF, BRISTOL.

THE chief aim of the committee with whom the restoration of the Church of St. Mary Redcliff has rested, having rightly been the maintenance and re-establishment of the fabric, they have persistently applied the comparatively small funds coming annually into their hands to the restoration of the exterior, which, when they commenced their work, was a crumbling ruin. The exterior work, however, is now considerably advanced; and so, too, is that of the interior; the latter mostly by the distinct subscriptions of individuals. The present rector, the Rev. H. G. Randall, is therefore setting himself to obtain further attention to the fittings of the church. Tenders have been received for properly lighting it with gas: a scheme for filling the various windows with stained glass has been sketched, and some new stained windows are being made. The chancel has long been in a condition little short of discreditable, but something is now to be done to remedy this, and it has been determined by some zealous friends to erect a reredos in accordance with the design of which we give a view in our present number. It will be chiefly of Caen stone; the small shafts being of coloured marbles, the statuettes probably of alabaster, and some few decorative portions of mosaic work. The bas-reliefs, which it is hoped may be executed in a high style of art, represent the Crucifixion, the Agony in the Garden, and Christ bearing his Cross.

It was suggested by a lady at the last meeting of "The Canynges Society" that the reredos should be the offering of those of her own sex who are interested in the restoration of the church. This idea is being acted on, and about 620*l.* have been already contributed towards it. The cost, however, would be considerably more than this sum, so that assistance is still needed.

The view includes the sedilia, &c., proposed to be undertaken hereafter, to render the design complete. Statuettes of the evangelists would fill the niches at the sides.



PROPOSED REREDOS AND SEDILIA; CHURCH OF ST. MARY REDCLIFF, BRISTOL.—MR. GODWIN, ARCHITECT.

INTENDED NEW THEATRE, BRISTOL.

THE tenders for this building were opened on Saturday last, and that by Messrs. Davis & Son was accepted, at 10,125*l.* for the theatre and two shops in the Park-row frontage. This amount does not include decorations, seating for boxes, furnishing, or stock scenery, for which an additional 4,000*l.* is reserved. The theatre will stand isolated, so that lights will be obtained on all four sides. The area of ground covered will be 105 ft. wide by 130 ft. long, with saloons and shops towards Park-row 50 ft. by 50 ft. additional. The principal dimensions are as follow:

From curtain line to front of dress circle	44 ft.	6 in.
" " upper circle	47	6
" " gallery	50	0
Width of the proscenium opening	30	0
Height	27	0
Height—pit floor to ceiling	45	6
Depth of stage	60	0
Width of ditto between walls	64	0
Width of ditto including two scene docks	100	0
Height from ditto to gridiron floor	57	0
Depth from ditto to sinks	21	0

The accommodation provided in each part of the house is as follows:—

Dress circle	340
Orchestra stalls	50
Twelve private boxes	50
Pit	800
Upper boxes and amphitheatre	360
Gallery	800
Total	2,400

The architect is Mr. C. J. Phipps.

THE LIGHT AND AIR QUESTION.

IN the House of Commons a few days ago Mr. Goldney called attention to the existing state of the law as regarded the right of access of light and air to ancient windows; and said that the space applicable for commercial purposes in the city of London and elsewhere was daily becoming more limited. The only way of increasing the accommodation accordingly was by heightening the buildings. This remedy was, however, a constant source of difficulty and litigation, the law being that any person within the city of London being the owner of a small building could stop any improvement which tended to diminish or detract from the light or air he enjoyed. Since the passing of the Prescription Act of 1834 any right of this kind that had been enjoyed for twenty years became a permanent right. This right had not unfrequently been made a subject of extortion, and a person wishing to heighten his house either had to pay a sum by way of compensation, or give up all hopes of improvement. Almost as long ago as the reign of Richard II. it appeared to have been anticipated that the city would grow into something like its present size; and a custom, which had been held to be good in law, prevailed that although a party might have had light and air in certain windows for any time, still an ancient tenant had the right, notwithstanding, to run up his house to any height he chose; and, further, that a jury of twelve aldermen, with the Lord Mayor as assessor, should sit to determine the relative rights of these parties. Since the Prescription Act of 1834 came into operation, giving the right to a perpetual use of the light and air then enjoyed, the elements of litigation began to arise. However anxious a man might be to improve his property, he was deterred from doing so, owing to the present state of the law; and in rebuilding it he was obliged to limit himself to the old height and the old style, and possibly to a very contracted space, whereby the public interest as well as his own materially suffered. Surely it might be practicable for that House, as the public convenience was so much concerned in that matter, so to legislate that the owner of the dominant tenement, where his rights were prejudiced by any improvements of that kind, should be entitled to compensation by damages, instead of being enabled to obtain a perpetual injunction from the Court of Chancery to prevent such beneficial improvements from being carried out? He wished to ask the Government, therefore, whether they did not think it feasible to introduce some measure by which the law on that subject might be put into a more satisfactory state; and he would, if necessary, move for a select committee to inquire into the matter.

The Attorney-General felt that it would be impossible for him to accede to any such motion. The subject was, no doubt, one of great and growing importance, although he thought the hon. gentleman entertained somewhat exaggerated notions with respect to it. As late as the year 1834, the law with regard to it had been carefully considered, and the right of which the hon. member complained was then settled. In the City of London up to that time there was a custom that the owner of the ancient tenement might build from the old foundation, and that the owner of the old foundation might disregard the rights of others. It was then thought desirable to alter that. The owner of the tenement had a right to a certain light; it was his property, and it was so declared by statute, if he had enjoyed the light for twenty years. The courts had held that the construction of the statute was quite clear. The right, however, might be taken away when the interests of the public required it on payment of compensation. It was impossible for the Government to take up that question, at all events during the present session.

BUILDINGS OF THE LEEDS INDUSTRIAL DWELLINGS COMPANY.

THIS block of dwellings, in Shannon-street, the first of this class of buildings erected in Leeds, was commenced in June last year. The ground plan comprises six dwellings, one of which has a shop attached; the first, second, and third floors have external stone galleries of communication reached by a stone staircase,—the object of this arrangement being to avoid the house-duty. Each of these floors has six dwellings: each tenement has, alternately, two and three rooms; the living-room being fitted up with coal-place, slopstone, meat safe, and cupboard, grate, with oven and boiler, and water laid on over each slopstone. It is to be regretted that the plan is not square. For ventilation there are external and internal ventilating air bricks, and Arnott's patent ventilators, in each chimney-breast. A washhouse, fitted up with boiler and sink, and having water laid on, is provided for the use of each floor. On the landings of the staircase are provided water-closets, fewer than they should be: a dust-shaft, with hatches for every floor, communicates with an ash-pit in the basement. The building, of a plain character, is of red brick, with stone heads and cills to the windows. The columns, girders, and railing of the gallery are of cast-iron. The total cost of this block is 1,440*l.* The architects are Messrs. Adams & Kelly, of Leeds and Dewsbury.

CLIFTON SUSPENSION BRIDGE.

THE INSTITUTION OF CIVIL ENGINEERS.

AT the meeting held February 12th, Mr. John Fowler, president, in the chair, the paper read was a "Description of the Clifton Suspension Bridge," by Mr. W. H. Barlow. Although we early gave a full account of the bridge, the completed particulars by the Engineer may be usefully recorded in our pages. In the Clifton Bridge as executed, he said, there were three chains on each side, supporting longitudinal stiffening girders of wrought-iron, with open-work cross girders, the hand-railing of the bridge being made also to form longitudinal stiffening girders, with open-work sides. The principal dimensions were — span, 702 ft. 3 in.; distance from centre to centre of chains, 20 ft.; width of bridge, including roadway and footways, 31 ft.; versed sine of curve of chains, 70 ft.; and height of roadway above high-water, 248 ft. The chains were carried upon the piers by wrought-iron saddles, placed upon roller frames of cast-iron, the rollers being made of cast-steel. The beds of the roller frames were at an inclination of 1 in 20, rising towards the river. At a distance of 196 ft. from the centres of the piers, land saddles were placed, which were similar in construction to the saddle upon the piers, except that they had no roller frames, but were bedded upon brickwork in cement set upon the solid rock. The distance from the land saddles to the anchorage was 60 ft., with an average inclination of 45°; and in this distance the three chains gradually diverged, until they were 5 ft. apart, where they were inserted through castings forming separate anchorage plates for each chain. The three chains were in such a relative position to each other as to produce an equal horizontal distance of nearly 8 ft. from the centres of the suspension-rods throughout the bridge. The suspension-rods transmitted their strain to the chains only at the joints; so that the links of the chain had no other strain upon them than that due to the direct tensile strain in the direction of their length. The duty of maintaining an equal action upon all three chains in supporting the roadway was performed by the strength and stiffness of the longitudinal girders. All the links were tested to a strain of 10 tons per square inch.

The arrangements for the erection of the chains comprised a temporary suspended staging, constructed of eight iron wire ropes, each capable of bearing 35 tons. Six of these ropes served to support a timber platform, and two were at a height of 3 ft. 6 in. above, to form a hand-railing on each side. The upper ropes were attached to those below, so as to act in conjunction with them in sustaining any weight upon the staging. Another rope was fixed above, for the purpose of carrying two light travelling frames, suspended on wheels, which were moved as required by light ropes, and by means of which links were taken from the piers to the men engaged in erecting the chains. The work was commenced at the anchorage plates at each end simultaneously, the lower chain being put in first. At the anchorage plates the whole of the links, twelve in number, were inserted; then eleven, ten, nine, and so on until the chain was diminished to one link; after which it was continued at one link and two links alternately from the piers, until it met in the middle of the centre opening. The wire-rope staging was designed to carry the weight of the centre portions of the chain, formed of one link and two links alternately, with the men and tools required to erect it. The calculated breaking weight of the staging was 224 tons, evenly distributed, and the weight it had to carry was 40 tons. The suspended platform was kept below the intended level of the chains, and the links were supported upon it by packing-pieces which could be raised or lowered. When the links of the chain were united in the middle, the packing-pieces were lowered until the chain took its own bearing, and thus relieved the staging from the action of its weight. At this stage of the proceedings the chain was adjusted for length, by means of keys arranged for that purpose in the first links from the pier saddles. The next operation was that of adding links on each side of the centre links, which was accomplished, by an ingenious and simple apparatus, with such rapidity, that on some days more than one hundred links were added. The chains on the Bristol or eastern side having been completed, the staging was removed to the other side, and the remaining three chains were put up in a similar manner. When the chains were erected, and the suspension links were fixed, the suspension rods and cross girders were attached, by means of a moveable crane, upon a long base frame, weighing upwards of 5 tons, and travelling upon a temporary railway. This crane was so contrived and balanced, that it could carry a cross girder, with an equivalent length of the longitudinal girders, a considerable distance in advance of the wheels upon which it travelled. Thus, when placed upon the abutment, it held the first cross girder in its intended position, until the men attached the first pair of suspension rods to it and to the chains. Planking was then laid from the abutment to the cross girder, and the railway was lengthened. The travelling crane next took up the second cross girder, and advanced with that to its position, and held it in like manner until it was attached to the chain. The planking and roadway were again lengthened, and the third cross girder fixed, and so on from both ends of the bridge, until the roadway met in the middle. The remaining operations of connecting the longitudinal girders, adjusting the several parts of the work, and laying the roadway were then proceeded with.

The sectional area of the chains at the pier was 481 square inches, and in the centre of the span 440 square inches. The weight of the chains between the piers was 554 tons, and that of the suspension rods, longitudinal and transverse girders, cross-bracing, hand-railing, roadway, &c., about 440 tons. The strain at the centre due to the chains, was 680 tons, that due to the weight of the platform, &c., was 597 tons, and that produced by a maximum moving load of 70 lb. per square foot, was 817 tons; or, together, 2,094 tons, which was equal to 4·76 tons per square inch of the sectional area of the chains at the centre of the span. The suspension-rods were each rather more than 2 in. in section. The greatest weight that could come upon a pair of rods, including their maximum load, was

about 13 tons, which would produce a strain of 4½ tons per square inch. The anchorage plates and the bearing plates of the saddles were so arranged, that the maximum pressure upon the brickwork could not in any case exceed 10 tons per square foot. In order to provide for the effects of expansion and contraction, and to allow for the movement occasioned by wind and by the passage of heavy loads across the bridge, the two extremities of the roadway were furnished with jointed ends or flaps, 8 ft. long, which gave perfect freedom of motion, both vertically and in the direction of the length of the bridge.

The works were commenced at Clifton, in November, 1862, by Messrs. Cochrane, the contractors, under the superintendence of their resident manager, Mr. Airey, and the bridge was opened for public traffic on December 8th, 1864. The total cost of the ironwork, including the purchase of the chains of the Hungerford Bridge and their carriage to Clifton, was 34,975*l*. Previously to opening the bridge, it was tested by a dead weight of 500 tons of stone, distributed over the surface, when a total deflection was produced of 7 inches in the centre. On the removal of the test-load the centre of the bridge rose to its former position within one-sixteenth of an inch, but the middle of the southern half of the bridge did not rise again to its former height by an inch, while the northern side rose above its original position. This was probably due to the change in the direction and force of the wind before and after the testing.

The author stated that the most severe strain which the bridge had to resist was that resulting from heavy gales of wind, especially those from the north-west or south-east, being nearly in the direction of the deep gorge of the River Avon at the place where the bridge was constructed. On these occasions three effects were observed. First, there was a small horizontal deflection, which was just sufficient to be perceptible to the eye when placed in range with the suspension rods. Secondly, there was an undulation from end to end of the bridge, the maximum rise and fall being, in Mr. Airey's opinion, as much as 6 inches above and 6 inches below the mean level of the roadway. Thirdly, the land chains, between the piers and the land saddles, which carried no suspension-rods, were liable to be deflected laterally, notwithstanding their weight, the longitudinal strain upon them, and the comparatively small surface exposed to the wind.

The author remarked that, considering the facility with which suspension bridges could be constructed, and the comparatively inexpensive nature of the scaffolding or temporary staging required for erecting them, there appeared to be no reason why spans of much greater magnitude should not be accomplished. The spans already crossed by bridges on this principle far exceeded those of any form of girder. The largest girder ever built was that of the Britannia Bridge over the Menai Straits, which was 460 ft. between the bearings. The largest suspension bridge was that at Fribourg, which was stated to be 880 ft.; while the Niagara Suspension Bridge was 820 ft. from centre to centre of the towers, and it had been in daily use for nearly twelve years for the passage of railway trains. Suspension bridges had not hitherto been adopted in this country for railway purposes, under the impression that the principle of construction necessarily involved such an amount of flexibility as to render them unfit for the passage of trains; but it must be considered that the larger the bridge, and the greater the ratio of the weight of the bridge to the weight of the moving load, the less was the disturbance of form caused by a passing load. Moreover, it was quite practicable to stiffen a suspension bridge so as to render it nearly as rigid as a girder, of which the Lambeth Bridge, from the designs of Mr. P. W. Barlow, was an example. The subject of stiffening suspension bridges with the least quantity of material was one well deserving attention. In a detached girder the upper and lower booms must each be capable of bearing the strains produced by the weight of the bridge and its load, and the diagonals must be strong enough to transmit the whole of those strains; whereas, in a stiffened suspension bridge, the chain was the only member required to bear the strains produced by the weight of the bridge and its load; while the diagonal bracing or stiffening, need be no more than was sufficient to prevent disturbance from the moving load. In relation to this subject the author stated he had found by experiments on solid bars, made in 1858, as well as from a theoretical investigation of the case as applied to lattice girders, that, in a continuous girder, if, instead of using an equal depth throughout, a greater depth and a greater sectional area were given over the piers, an increase of strength was obtained in a much higher ratio than that of the increased weight of metal employed. Another point deserving of consideration was the best form of link and fastening for the chains of a suspension bridge, to which Sir Charles Fox had directed attention. But where the object was to construct bridges of very large span, another, and perhaps the most important consideration, was the employment of a stronger material. In this respect the introduction of steel was calculated to have a marked influence. Many of the properties of steel were at present unknown; but it had been determined by experiments that its tensile strength was nearly double that of wrought iron, and that it could be made quite as malleable. Its powers of resistance to compression did not show the same proportion of strength; but in the application of steel to the chains of a suspension bridge, it was the tensile strength which operated.

DWELLINGS FOR THE POOR.

LIVERPOOL ARCHITECTURAL SOCIETY.

AT the last meeting, Mr. T. J. Kilpin, president of the society, in the chair, read a paper "On Dwellings for the Poor." He commenced by saying that many of the poorest artisans of the present day were better housed and fed than the noblest baron in the Norman age; which we altogether deny, by the way. He then proceeded to detail the horrible style in which many artisans and labourers lived, and referred to the efforts that were being made to remedy that evil. He alluded to the bill of Mr. Torrens, at present before the legislature, and congratulated the town on the fact that the local legislature had preceded the imperial legislature, in proof of which he quoted the beneficial results that had accrued from the grand jury presentments in Liverpool. The corporation, he said, "recently directed the borough engineer to prepare plans for the description of dwelling-houses so much wanted, and to endeavour so to arrange and construct them if possible that they might yield a fair per-centage on the outlay. These plans were completed some months since, and the public attention has been directed to them; but considerable apathy, I am sorry to say, has been shown with regard to them. The builders have, to use a familiar expression, 'fought shy of them,' expressing the utmost readiness and alacrity to erect them if the corporation would build them and become landlords, but respectfully declining to incur the risk of doing so themselves. But it seems, from the bill introduced into the House of Commons, that where private enterprise falters, hesitates, or declines, the local authorities are to so act in the matter, and when necessary, to be assisted by a loan. This the corporation of Liverpool would not want; but if the intended bill compels them to act in the matter, or they should do so of their own accord, I have no hesitation whatever in saying, after a careful examination of the plans, a calculation of the cost of erecting them, and of the income to be derived from the houses when erected, that a most ample remuneration would accrue for the capital expended. The plans are now being revised, and still further improvements are being made in their arrangements and construction, and will shortly, I believe, be again brought before the public notice."

DUST AND ASHES.

THE Works Committee of the Vestry of St. Pancras have received tenders for the removal of the dust from the houses in the parish for the year ensuing, the lowest of which amounted to 1,770*l*., to be paid by the vestry to the contractor. The amount of the last contract was 1,050*l*., paid by the contractor to the vestry, making a difference in the terms of 2,820*l*. The lowest tender for the removal of road sweepings and gully soil when swept to the sides of the streets was 6,150*l*.; the amount of the last contract 4,055*l*.; being an increase of 2,095*l*. The committee thereupon determined to re-advertise for tenders, when the lowest of those sent in for the removal of the dust was 1,270*l*., and for the removal of road-sweepings 5,615*l*., which were accepted.

On the receipt of the first of the above-named tenders, Mr. W. B. Scott, the chief surveyor to the vestry, was requested to report to the vestry upon the advisability of the vestry undertaking the removal of the dust and road sweepings, and in his report he states,—

"The quantity of dust and refuse removed from the houses in the parish amounts to from 23,000 to 25,000 loads per annum, each load being about equal to 1½ chaldron. This dust is all screened, and picked over by hand, and converted into breeze, ashes, hard core, and soft core. The 'breeze' is composed of the finer particles of dust, and is used in brickmaking for tempering and mixing with the clay. The ashes, which from many districts contain large quantities of coal, are used for burning the bricks. Hard core (otherwise dust-yard pickings) is used for the formation of roads. Soft core is composed of vegetable and other perishable refuse, and is burnt where the dust-yards are in open situations, and barged away into the country where the yards are in inhabited localities, and are on the banks of a canal. About a half-chaldron of breeze and ashes is required for 1,000 bricks, so that the supply from St. Pancras is sufficient for the manufacture of fifty millions of bricks. The price of breeze this time last year was from 8s. to 10s. per chaldron. It is now 3s. to 4s. per chaldron, and will probably be lower. A depreciation of 4s. per chaldron will represent a difference of money value in the dust of the parish of from 4,000*l*. to 5,000*l*. The value of the hard core does not fluctuate much, and is not worth more in the dust-yard than about 1s. per load. The cost of barging away the soft core is about 2s. per load.

To enter upon the removal of dust, the vestry would require 32 carts for the average work, and to be provided for the heavy 40 carts. These carts would cost about 25*l*. each, equal to 1,020*l*.; for these, horses and drivers could be obtained as required. A large wharf would be necessary with a staff of foremen and clerks, and then nothing more would be required but purchasers for the manufactured article. The vestry, instead of being able to dispose of the breeze, would be unable to get rid of it at all. I estimate the cost of collecting the dust would be about 6,000*l*. a year, without reckoning the cost of wharf or land. I am decidedly of opinion that it would not be advisable for the vestry to entertain the idea of dusting the parish. Profit is made by combining the business with that of slopping, and both with that of brickmaking, and in most cases with that of speculative building also. If carried out by the vestry, the work would probably be done more to the satisfaction of the inhabitants, but it is entirely a matter of expense. The ever-increasing population of the metropolis produces an amount of the material much greater than the increased demand. Nothing could have kept up the price of breeze at the height of late years, but the enormous public works that have been carried out."

Upon this report of Mr. Scott, the Works Committee resolved not to go into the business of dust contractor.

The Works Committee of St. Pancras has accepted the tender of Mr. Culverhouse for the supply of road materials:—

	Per yard.
Loamy gravel	£0 6 4
Hard core	0 2 10
Burnt ballast	0 2 11
Dust-yard pickings	0 2 6
Clean rough gravel	0 6 6

The tender of Mr. Crofts was accepted for,—

Hand-picked flints	£0 11 10
Pit flints	0 8 4

THE BIRMINGHAM SCHOOL OF ART.

THE annual meeting of subscribers and friends to this school has been held in the Rotunda of the local society of arts. Lord Dartmouth, the president for the year, took the chair. The report stated that, notwithstanding the financial disasters and stagnant trade of the past year, the number of students has been 1,007, showing a decrease of only two from the numbers registered on the books for the preceding year. The amount of school fees has been 779*l*. 9s. 6d., showing an increase of 33*l*. 10s. 6d. over the receipts of last year from the same source. At the National Competition of Art Schools held at South Kensington in May last, under regulations of the new minute of Council, one gold medal out of ten awarded, one silver medal out of twenty, and two bronze medals out of fifty-one, were taken by students of the Birmingham school. The number of competing schools was above ninety. In addition to these, twenty-two prizes of books were awarded, and also fourteen prizes at the local examination in March last. Special prizes had been offered for the best designs in several departments, and the results had been very satisfactory. At the meeting the following list of the number of manufacturers, with the number who were subscribing to the school, was given by Mr. Aitken:—

	In Birmingham.		Subscribers.
Brassfounders	200	...	13
Electro-plate and plated ware	54	...	2
Jewellers and gilt toys	350	...	2
Buttons	216	...	3
Glass trade	30	...	4
Papier mâché and japanners	52	...	0
Die-sinkers	65	...	0
Engravers	162	...	0

He said he hoped that manufacturers would show their appreciation of ornamental art, as applied to industry, by subscribing more liberally to the school than they had hitherto done.

"FAIR PLAY FOR THE LAW COURTS."

SIR,—In your paper of last Saturday, the 2nd instant, you have inserted a letter headed "Fair Play for the Law Courts' Competition," and signed "A Member of the Solicitors' Committee," animadverting upon Mr. Field, the secretary to the Courts of Justice Commission.

The Solicitors' Committee, of whom the writer of that letter therein alleges that he is one, is a committee of members of the Courts of Justice Commission, and consists of Mr. Hume, Mr. Cookson, Mr. John Young, and myself.

I am expressly authorised by my three colleagues to deny, and for myself I deny, that we, or any of us, wrote that letter, or had any knowledge of it, before we saw it in your journal.

Mr. Field, the excellent secretary of the Commission, needs no defence by us, and we, therefore, confine ourselves to pointing out the imposition practised upon you and your readers by the writer of the letter.

ALFRED BELL,
Chairman of the Solicitors' Committee.

SIR,—My letter in your last number has caused a little hubbub, so I am told, and the architectural clerk's unhappy looks testify that my reference to Dr. Percy's private letter has opened his eyes to the painful results of allowing one's feelings to get too much control over one's tongue. The secretary's face is more inscrutable, but there is a hubbub, whatever his looks may say; and that being the case, my object, I consider, has been gained; for it may be presumed that "hubbub" means inquiry, and inquiry in this case is certain to result in "fair play." Never mind *how* I got my information: the doors of the Commission stand hospitably open, and I got it, and sent it you, and the facts it contains are still facts, though it happens that you dubbed me wrongly

A MEMBER OF THE SOLICITORS' COMMITTEE.

*** We misunderstood a postscript of our correspondent, and applied a wrong signature.

VANDALISM AT TENBY.

MR. EDWARD ROBERTS writes as follows:—In your last number, under this heading, it was stated, as a fear, that destruction awaited the ancient town gates. I am happy in being able to say that the Mayor of Tenby and others are alive to the necessity of preserving them, if possible. The subject was brought before the British Archæological Association by Sir Gardner Wilkinson, and some correspondence ensued which resulted in an assurance that certainly one, if not both, of the doomed gates will be retained. I may add, that this appears to be entirely due to the exertions of Sir Gardner and the Association, aided by some local *savans*.

BUILDERS AND ARCHITECTS.

MR. NISBET, secretary to the Builders' Association, Edinburgh branch, writes as follows:—"I am desired to inform you, that the directors having sent a deputation to Messrs. Peddie & Kinnear with reference to the conditions proposed to parties estimating for St. Cuthbert's New Poor-house, the deputation have to day had a meeting with these gentlemen, when they agreed that the offers should be according to plans, specification, and schedules of measurement. In the event of a strike, additional time is to be allowed; and Mr. George Young, advocate, is named referee in the event of disputes." The tender is to be marked—"To the extent of the schedule of measurement."

SUGGESTIONS FOR IMPROVING THE SQUARES OF LONDON.

No localities add more to the melancholy aspect of the metropolis than its squares and public places. Who would be at all surprised to see tombstones in any of the railed plantations east or west of Tottenham-court-road? Can any one promenade in these dingy sooty shrubberies, overlooked by drawing-rooms and nurseries, with either complacency or advantage? Nor am I sure that the large trees in struggling and straggling upwards towards the light contribute to the health of the surrounding inhabitants. Seeing, then, that these gloomy plantations are but the most miserable apologies for rusticity, would it not be better to adopt some other mode of laying them out more consistent with "in town" conditions? In the squares of the dullest Continental town there is always some life stirring about the central statue or fountain, and the very open airiness of the place is infinitely more cheerful than abortive attempts to convert similar localities into sylvan woods. I believe the right garniture of large intramural spaces to be fountains, statues, flower-beds, gravel walks, and a very moderate plotting of tree-shrubs, large wood being, in my opinion, altogether out of place.

With regard to Trafalgar-square, I would only suggest that the present water-jets should be removed, the basins filled with earth and set with flowers; that the entire expanse of sloppy and dusty asphalte should be taken up, and the area paved with dark slate or black marble, to be carried in a bay round the column and its adjuncts, bounded by a dwarf wall, and converted into a reservoir for clear water, which would reflect gallery, column, and lions with magnificent effect.

We require colour and water to enliven this dull city. W. CAVE THOMAS.

IRON MONUMENTS.

An "Old Founder" writes,—If any more large lions, or other savage beasts of colossal stature, should be required by the public, I think I can indicate a much less costly mode of obtaining them than paying Baron Marochetti 400*l.* per ton for casting them.

There is no more practical difficulty, the models being supplied, in casting a lion than a column or a girder, perhaps less than in an engine cylinder, and I shall be very glad to supply any number of lions, griffins, sphinxes, &c., &c., up to 10 tons each, for 50*l.* per ton; and I will engage that after six months' exposure to a London atmosphere my cast-iron beasts or monsters shall look as well and rather better than the bronze ones.

Bronze is very nice for a chimney-piece ornament, when you can preserve the rich colour of the metal, which is its great charm; but I appeal to any of the open-air statues in London whether it is not utter folly to put this costly material in situations where it so rapidly loses its colour and oxidises to a very considerable extent.

If cast iron be well soaked with linseed oil while the iron is hot, it takes a fine rich tone of colour, and will resist oxydation very much better than any bronze exposed to the open air that I have ever seen.

Sir Edwin Landseer is fully entitled to every shilling of *his* money for his magnificent models, but 11,000*l.* for casting them is—well, never mind what!

"STARVATION WAGES." "WHO FIRST TO BLAME."

SIR,—Very painful accounts have for some time appeared of starvation wages, even for excessive labour, at Bethnal-green. Let us inquire whether the "outer" world may not have had for a long time something to charge itself with; and what might be the antidote. No aphorism of Napoleon I. was perhaps better than—"'Impossible' is the word of fools."

A daily paper (I am not certain which) stated, from some correspondent, years ago, that there were two parties mainly answerable for this,—First, the "public," who have a craving—I hope more thoughtless than unprincipled—for cheapness, the actual effect of three-parts starving the workers; second, the "vendors," who seem too often quiet acquiescers in the compact. Once, and once only, have I known a very leading suburban draper both remonstrating with (of course very politely) and informing some ladies who had murmured at a trifling rise in price in some article, by telling them the simple truth,—that the makers there were "just beginning to live," after long starving, through the small advance they objected to.

Surely this should be satisfactory, as I hope it was then, to all right-thinking persons. How far making and selling fewer things at a higher price would answer the purpose I cannot say; but would it not be better for all to be willing to pay more, even if they retrenched in some other point, that the labourer might have his due? Little need to exaggerate the picture; but I doubt not that the miserable "Song of the Shirt" is far from unparalleled in other branches of work.

If even some "houses" were to charge higher prices, and insist on knowing (with power of proof) that "living wages" were paid at the "fountain-head," I can but think that the conscientious public would rally round them. Nor need we, I think, doubt that even royalty might interest itself in the matter, after her Majesty's remonstrance with railway evils or shortcomings.

If these humble observations should lead to useful thought on the subject, I should be thankful to Providence. D.

BUILDERS' TROUBLES.

SIR,—A short time since an advertisement appeared in two papers (at least), one a local, the other yours, requiring tenders for the erection of a house at Fairfield, and stating that the plans and specifications might be examined at the office of the architect, Mr. J. B. Newton; and I, fully intending to join in the competition, sent two persons there (one from my residence, Margate), on purpose to examine the plans, &c., when they were directed to the surveyor's office (after having been requested to copy a piece of paper on which the particulars were stated, the first of which was that quantities would be ready in a few days, and would be forwarded to the builders free of charge). On getting there they could not see the plans for about four hours after, as they were out somewhere. However, after seeing them, they obtained a promise at this office that the quantities would be sent home all right.

To my surprise, a week ago, I saw the amounts of the tenders in the *Builder*, without having heard one word about the matter previously. I, therefore, wrote at once to the architect, who answers me that, since the advertisement, it was found desirable to have a select competition, and that he could not find any promise had been made to me of having the quantities, although I had it in the particulars. Can I obtain any compensation for my trouble? RICHARD PARAMOR.

WHERE IS THE SANITARY INSPECTOR FOR ST. PANCRAS?

SIR,—The *Builder* being the promoter both of the sanitary and moral condition of the public, may I trespass on you to expose the undermentioned abuse, which is permitted under the very nose of the police and parish officials?

In a quiet street in St. Pancras, bounded on one side by the vestry-hall and by the police-station on the other, it is the practice nearly every evening for a number of horses (half a dozen at a time), filthy carts, and men, belonging to a contractor in an adjoining street, to halt on their return home from their daily labour, and in front of the windows of the houses, both men and horses, commit a most disgusting nuisance, to the great scandal of the inhabitants. The result in another respect is abominable. But few of the houses lately have been free from fever. The inhabitants have sent a written request to the contractor to stop it; one of the parish surveyors has been asked to interfere; the carmen have been continually desired to move on; but all to no purpose. Though decency forbids, still they come. To the *Builder*, therefore, they appeal to bring public opinion to bear on the authorities, to preserve the public health and morals, and induce the contractor to keep his nuisances to his own stableyard. AN INHABITANT.

CHURCH-BUILDING NEWS.

Ashford. — The new church has been just finished, at a cost of 3,800*l.* The church is to be a free one, and the sittings unappropriated. The committee have determined not to open the church until the whole of a remaining debt of 200*l.* is paid.

Eastbourne.—St. Saviour's Church has been consecrated. It is built from designs by Mr. George E. Street, architect. The materials employed are red brick, with Bath stone dressings. The style is Geometrical. The church consists of a nave, chancel, and side aisles, with organ-chamber, vestry, and west porch. The nave is 90 ft. long and 35 ft. wide. There are six bays, the last of which, as it joins the chancel, is placed diagonally, so as to form with the chancel-arch an apse. The nave is lighted by a clearstory, the windows of which are 10 ft. high by 5 ft. wide. The basement of these windows is about 25 ft. high, and is supported upon arches and stone pillars. The ridge-tile of the nave is at a height of 70 ft.; but the interior roof is boarded upon principals, which form an arch, the apex of which is 10 ft. below this. Tie-rods of iron are inserted, and bind the whole together. The chancel is 28 ft. deep, and terminates in an apse. It is lighted by four windows, 14 ft. high by 7 ft. wide, of which the base is 15 ft. from the ground. The roof is groined in brick, with stone ribs, these latter springing from shafts of Devonshire marble. The lower parts of the walls are left for future decoration. The floor of the chancel is laid with Godwin's encaustic tiles, relieved with white marble and Warwick stone. The glazing throughout is in three tints of green cathedral glass, and arranged in squares of different sizes. In the windows of the south aisle and nave apse, Powell's stamped quarries are introduced; these are marked with Mr. Street's patterns. The glass is very thick, giving a cool silvery effect. The side-aisles are narrow, and are covered with a lean-to roof. The windows are proportionally small, and are of two lights. The building is without the tower and spire, which are intended to rise from the west end of the north aisle. The slates on the roof are in three colours, and arranged in diamonds. The walls throughout are 3 ft. thick, with a hollow space of 4 in., and are bound together with iron clamps. The work has been carried out by Mr. Peerless, builder. The stonemason's work has

been completed under the superintendence of Mr. Patchett, foreman to Messrs. Parsons, of Eastbourne and Lewes. The sole cost of the building, about 8,000*l.*, is borne by Mr. George Whelpton, who, we understand, intends also to endow it, and wholly or in part to build a parsonage house.

Wombwell.—A meeting of the ratepayers of Wombwell has been held for the purpose of taking into consideration the formation of a cemetery for the township. The meeting decided that the Burial Board should be instructed to expend 3,500*l.* in the buildings and site. A piece of ground containing about six acres, belonging to the representatives of the late Mr. Joseph Eastwood, was selected. The cost of the site was stated to be about 1,200*l.* Three acres of land are proposed to be laid out at present, half of which is to be consecrated, and the other half appropriated to interments by the Dissenting portion of the inhabitants. Mr. Dobbs, of Rotherham, was appointed architect of the works.

Newbottle.—The church here has been re-opened for divine service, after having undergone a restoration, rendered necessary partly by the lapse of time and partly by alterations made in the original structure. The chancel has now been restored, certain windows having been replaced by others, and various other alterations effected. In the course of the repairs of the chancel a sedilia, long walled up, was brought to light, as well as a Gothic window. The roof of the chancel, and the church generally, has been opened up, and the old pews, which were in a dilapidated and discreditable condition have been replaced by open seats. A new organ, built by Mr. Bevington, of London, has been added, and the comfort of the building has been provided for by Rimington's heating apparatus. The churchwardens and other promoters of the restoration did not think it necessary to engage the services of a professional architect, but they were subsequently glad to avail themselves of the assistance and advice of Mr. Hannaford, who was then engaged in superintending the improvements at King's Sutton Church. Messrs. Franklin & Son, of Deddington, were the builders, who also executed the carvings on the wooden screen. The cost of restoring the chancel has been mainly defrayed by Mr. W. C. Cartwright and Mr. T. L. M. Cartwright. The amount expended on that portion of the building is about 200*l.* The expense of the remaining repairs is about 600*l.*

DISSENTING CHURCH-BUILDING NEWS.

York.—The foundation-stone of a Baptist church has been laid here, in Priory-street, Micklegate. It is to accommodate 700 persons. The building will stand with its side to Priory-street. The style is the Early Decorated. The plan consists of a nave and aisles, with transepts. The extreme length of the nave will be 78 ft.; the width 24 ft. 6 in.; height to the eaves above the clearstory, 32 ft. 6 in., and to the collar-beam of roof (where it is ceiled), 44 ft. 6 in. The extreme width will be 44 ft. between the aisle walls, and 49 ft. 6 in. across the transepts. The arcade below the clearstory will be of brick, with plaster mouldings, and supported upon cast-iron columns, with foliated capitals. A gallery will be erected over the aisles and across the ends over the vestibules. At the opposite end an arched recess will be provided for the organ and choir. The front of the galleries will be in pitch pine, with Quebec pine panels in the lower part, and ornamental ironwork in the upper part, the framing being relieved with ornamental chamfering. The iron columns supporting the arcade will divide the gallery front into bays, as they are seen the entire height. The organ-gallery front will be in ornamental woodwork entirely. A platform will be provided instead of a pulpit, below the floor of which will be the baptistery, made in Ransome's patent concrete stone. The steps from the baptistery will lead direct into the vestries. The seats will be all open benches, with ornamental ends. Behind the church, with its end to the street, will be a lecture-room, 40 ft. by 21 ft.; minister's vestry, lobby, and staircase to school-room, which will be 45 ft. by 25 ft. The timberwork of the roof of both church and schools will be exposed to view. The roof of the church will have curved ribs below the collar-beam, and terminating upon ornamental stone corbels in the spandrel of the arcade. The exterior will be faced with stone, the dressings will be in Whitby stone, and the walling of Bradford sets, in thin beds. The side being to the street will be the principal front. There will be a tower at the entrance corner towards Micklegate, containing one of the staircases to the galleries. The tower is to the top of the parapet 54 ft., and to the top of the pinnacles 61 ft. It will be covered with a high-pitched roof of ornamental slating, having iron cresting on the ridge. At the opposite end of the front will be two gables, the one being the school, and the smaller one the transept of the church. The former will have a porch in the centre, with a two-light window upon each side. Above will be a three-light window, having trefoil heads, with a single trefoil-headed window upon each side, while above this will be an ornamental circular window. The transepts will have a four-light trefoil-headed window in the bottom part, with a three-light traceried window to light the gallery. The aisle windows will be in two tiers, divided by a moulded string. The lower tier will have two-light tracery windows, and the upper tier narrow three-light trefoil-headed windows. The clearstory will be lighted by four circular windows. The end elevation will consist of three deeply-moulded doorways. The one doorway is in the tower. Above the doorway, at the opposite side, there will be an ornamental rose window lighting the upper part of the gallery stairs, which will be covered in with a high-pitched roof. Upon each side of the central doorway, which will be wider than the others, there will be a single-light trefoil-headed window, and above the door a three-light traceried window. The architect is Mr. W. Peachey, of Darlington. The contractors for the several works are, for the brick and stone work, Messrs. C. Bowman & Co.; plastering, Mr. M. Croft; slating, Mr. T. F. Wood; carpenter and joiner's work, Mr. W. Bellerby; plumbing, gasfitting, and glazing, Mr. J. Dickinson; painting, Mr. Poulter; smith and ironfounder's work, Mr. Bousfield; and warming, Messrs. J. Longbottom & Co. The cost, including everything but school fittings, will be 3,538*l.*; and the total cost, including the land, will be about 5,000*l.* Of this 1,000*l.* have been contributed by Mr. G. E. Foster, of Cambridge, and 2,000*l.* more by other friends, leaving a debt of about 2,000*l.*

Books Received.

VARIORUM.

THE publication of the second volume of Mr. Fergusson's "History of Architecture in all Countries" (Murray, Albemarle-street) completes the work, the "History of Modern Architecture" already issued forming the third volume. We shall early give it that full review to which its importance and value entitle it. Compared with the "Hand-book," the volume now before us may be called a new work, the greater part of the matter and half the illustrations (which are above 650 in number) being entirely fresh. ——The April number of the *Art Journal* will contain the first part of the Illustrated Catalogue of the Paris Exhibition. It will include 100 engravings, illustrating works of Froment Meurice, Hunt & Roskell, Sy & Wagner (Berlin), Elkington, Harry Emanuel, Weise, Benson, Rudolphi, Odiot, Christofle (jewellers and goldsmiths, of Paris or London), Copeland, Minton, the Imperial and Royal manufactories of Dresden, and Berlin (porcelain), Durenne (cast-iron), Brecheaux (fans), Servant, Charpentier (bronzes), Jackson & Graham, Gillows, Trollope (furniture), Dobson (glass), and others.

Miscellanea.

CHIMNEY-POTS IN GALES. — A correspondent suggests that chimney-pots might be screwed on to metallic collars secured into the brick-work, as the potter could easily form the worming; and a few turns on the collar would permanently fix the pot.

EXHIBITION OF HISTORICAL PORTRAITS IN PARIS.—The Pompeian house built for Prince Napoleon, in the Avenue Montaigne, has passed into the hands of M. Arsène Houssaye, the well-known editor of the *Artiste*, who is now engaged in preparing an exhibition of portraits. It is said that the project has been well received, and that the collection is likely to be a highly interesting one, including many fine and curious works, especially of the revolutionary period.

TELEGRAPHIC.—The reduction in the tariff for messages sent by the Atlantic cable from a minimum of 10*l.* to 5*l.* will take place on or about the 15th of this month, and, as on the former occasion, official notification will be made only a day or so before the change.

THE ECLIPSE OF THE SUN.—The eclipse took place on Wednesday morning at the time calculated on, but the condition of the weather was such that few facts of any value were obtained, though elaborate preparations had been made in several quarters. A poetical correspondent got a fancy out of the appearance that was presented in the sky, and stated it thus:—"The clouds rushing past the sun give to it the appearance of a poor persecuted victim, striving to escape from the incubus that has fastened on it, and which, vampire-like, seems to be sucking away its life." Those who watched the eclipse will recognise at once the force of the "conceit."

INCREASED FOOTWAY IN FRONT OF THE MANSION HOUSE.—The railings in front of the Mansion House have been removed, and the space flagged. Although only about a yard in width is thus added to the footway, the whole length of the Mansion House front, the gain to the public is immense, as the traffic in this part of the City of London is very crowded. We noted a piece of bungling management on the part of those who had charge of the work. The paviors were busy finishing their work just at the moment the Prince of Wales and a large company were arriving at the Mansion House, to attend the meeting of the National Lifeboat Association, on the 28th ult. A little extra effort might have avoided the unseemly scene.

THE ROYAL POLYTECHNIC INSTITUTION.—The ordinary general meeting of the proprietors of the Royal Polytechnic was held on Saturday afternoon last, at the Institution. The Rev. J. B. Owen, chairman of the Board of Directors, presided. It appeared from the report that the receipts had been greater than in the corresponding half of last year, and although a large sum had been expended in repairs and improvements, there remained a handsome balance for dividend. The number of visitors to the Institution during the half-year exceeded 111,000*l.* The directors recommended the payment of a dividend at the rate of 4 per cent. for the half-year, making the dividend for the year 7 per cent. A vote of thanks was passed to Professor Pepper for the attention he continued to give to the interests of the Institution.

WORK IN THE PARIS EXHIBITION.—The earthworks of the Paris Exhibition, including all the cutting and filling in the park, have amounted to upwards of half a million cubic yards, according to *Engineering*. The ironwork of the building amounts to 13,200 tons, of which nearly 10,000 tons are in the great machinery gallery. The prices of the wrought-iron work have been, for the great gallery, 23*l.* per ton, with the exception of the sash irons, which were 31*l.* The corrugated plates were 28*l.* 10*s.* per ton, fitted. For the inner galleries the price of the cast-iron work, in columns, arches, consoles, &c., was 13*l.* 5*s.* per ton. The Coignet *béton* has cost 1*l.* 12*s.* per cubic mètre, or about 24*s.* per cubic yard. The windows of the machinery gallery present a surface of no less than 53,700 square yards, and the other galleries have nearly 25,000 square yards of glass.

STATUE OF SIR CHARLES BARRY.—The accounts have been closed, and stand thus. The expenditure has been,—

	£	s.	d.
By amount of bills paid, 1861—1867, viz.:—			
Mr. J. H. Foley, for the statue, and for erecting it	908	15	0
Mr. W. Field, for the marble plinth, carving the background, and sundry extra works	169	10	0
Mr. J. G. Crace, for gilding and emblazoning the architectural details of the arch, &c., adjoining the statue	45	9	0
Mr. J. Mabey, for two small plaster models of the statue and the adjoining portion of the building	29	1	0
Printing, writing, advertising, postage, and sundry small disbursements	44	12	0
	£1,198	7	0

It was met thus,—

1861—1867.	£	s.	d.
To amount of subscriptions	1,030	0	0
,, additional subscription from Mr. J. Lewis Wolfe, being the balance of the account	168	7	0
	£1,198	7	0

Mr. Wolfe had previously subscribed 200*l.* The next largest subscribers were Messrs. Lucas, who gave 100*l.*

COUNTENANCED BY SMOKE.—The last scientific toy we hear of from America is in the shape of some cigar-holders made of paper and quill, each showing a blank medallion, on which, however, a photograph is developed in a few moments when the holder is used for its intended purpose. It appears from experiment that the ammonia of the smoke is the developing agent, but the exact nature of the action has not yet been explained.

THE SANITARY CONDITION OF LIVERPOOL.—In the Commons Mr. Samuelson recently asked the Home Secretary whether he would lay upon the table the report of Mr. Taylor on the sanitary state of certain parts of Liverpool, and on the condition of the dwellings of the poor in that town; and whether he had received from the local authorities any satisfactory assurance that the recommendations of Mr. Taylor would be promptly carried into effect. Mr. Walpole, in reply, said that the report was a very long and valuable one, and had only recently been delivered at the Home Office. He would go through it without delay, and would then state whether the report and the other papers on the subject could be laid on the table of the House.

DUNFERMLINE: THE PALACE RUINS. — Lord Provost Whitelaw has issued a notice to the inhabitants of Dunfermline, in which he says:—"As some misunderstanding exists as to the virtue of the decision of the House of Lords in this case, recently delivered, and as some ill-advised persons and boys have forced access into the palace grounds, the magistrates deem it their duty to announce that, until the judgment of the House of Lords is applied, the inhabitants have no legal right to force access to the grounds." In the same notice he says:—"The magistrates are at present taking steps to obtain permission from the Commissioners of her Majesty's Woods and Forests to open the grounds to the public, and also to make arrangements for the future preservation and management of the grounds; and until the judgment is applied, the magistrates earnestly trust that no attempt will be made to force an entrance to the grounds."

GAS.—The Canterbury Gas Company have declared a dividend for the last half-year at the rate of 6 per cent. per annum.——The Tunbridge Gas Company have declared a dividend of 7½ per cent. for the past year, besides placing 250*l.* to their reserved fund, and having a balance of 183*l.* over.——The Cardiff Gas-light and Coke Company have declared a dividend at the rate of 10 per cent. on their old shares, and 8 per cent. on their new, for the last half-year.——The following resolution, moved by Colonel W. Patten in the Commons, has been agreed to:—"That it be an instruction to the Committee of Selection that it has power to refer every gas and water bill of the present session, excepting those relating to the metropolis, against which a petition endorsed for hearing before the referees has been presented, to the Court of Referees instead of to a committee of the House, with power to the referees to inquire into the whole subject-matter of the bill, and to report thereon to the House." The resolution was agreed to.

THE HUTTON VIADUCT.—The North-Eastern Company have made great progress with the works for the reconstruction of this large structure, which carries the main line to Scarborough across the Derwent in an oblique direction, and at a height sufficient to avoid interference with the Malton navigation. The new viaduct will be much shorter than the old wooden one, but will still consist of four openings of about 90 ft. each, the new viaduct being one half of the width of the present bridge higher up the river. One coffer-dam has been formed on the East Riding side, and two others on the North Riding side, all in the lacustrine and river deposits. These have been carried down some 16 ft. through layers of gravel, sand, clay, and peat. The bottoms of these coffer-dams have been "piled" with old iron rails, and among these a bed of concrete has been thrown, upon which the piers for the superstructure are to be built. Owing to the depth of water, however, the two piers in the river could not be formed in coffer-dams. In lieu thereof three piles of hollow cast-iron are driven down to the rock, and these piles are bolted together on cast-iron plates laid on the top, and then braced by iron bands in all directions. Upon the iron platforms thus formed the piers are to be built, none of the masonry (except in flood) being in the water. The piers will be of stone and brick, and the permanent way will rest on sixteen huge girders of riveted iron plates.

BUNHILL-FIELDS BURIAL-GROUND.—The question of this last resting-place of four acres being given up to bricks and mortar at the end of the year is one now exciting the attention of the religious world, as also of the corporation of the City, which public body are most desirous that it should be preserved, but they cannot come to terms with the reversioners, the Ecclesiastical Commission. It behoves Churchmen as well as Dissenters to co-operate immediately in the carrying out to a good result of some plan for the preservation of Bunhill-fields.

THE ARTISANS' AND LABOURERS' DWELLING BILL.—The Metropolitan Board of Works have referred this Bill for consideration to their works and general purposes committee. The chairman at a recent meeting remarked that there could be no doubt that the principle was correct, that when a house become a source of annoyance or danger to the persons living in its neighbourhood, the owner or lessor should be compelled by law to permit its being taken down. A magistrate might make the necessary order on just cause being shown by witnesses on oath. Mr. Saunders said he approved of the clause giving the local authorities the power to open blind allies, a course which was most necessary for the health of many London quarters. He did not believe that the Bill would lead to any increase of taxation.

DEATH OF NINE CHILDREN BY FIRE. — A shocking catastrophe has occurred at Accrington. Beneath an infant-school, where about 100 children attended, were varnishing and heald knitting works, with hot stoves and pipes, and only a wooden staircase to the school. A fire broke out suddenly in the varnishing shop while all the children were in the school, and the staircase immediately took fire, so that only a few of the children could with great difficulty be got out. Ladders were procured, and scores of the little creatures were thus saved from a dreadful death. Indeed, it is wonderful that only nine were destroyed, for the place burnt like tinder and was completely gutted. To have so many children collected in so dangerous a place as a varnishing shop was certainly wrong. A verdict of accidental death has been given.

CHURCH CONSECRATION.—The case of Parker *v.* Leach was an appeal from a judgment of the Chancery Court at York, to the Judicial Committee of the Privy Council, under a proceeding of "perturbation of a seat" in the parish church of Waddington, in the diocese of Ripon and province of York. The question raised and decided was whether a parish church, after alterations and part rebuilding, should be reconsecrated? The church in question was, in 1825, under the authority of a faculty, rebuilt in some of its parts, and had new buildings introduced into it by way of repair, but an important portion of the original consecrated structure remained untouched. The Judicial Committee held the church never ceased to be a parish church, and required no reconsecration after the above alterations. It was stated, also, that there was no authority for the doctrine that where the communion-table of a parish church has been taken down and replaced by a new one, it requires reconsecration, for the communion-table of a Protestant church is not analogous to the altar in a Roman Catholic church.

THE LATE MR. JOHN PHILLIP, R.A.—The remains of the late admirable artist, Mr. John Phillip, who died at his house, Campden-hill, Kensington, on the 27th ult., have been interred in Kensal-green Cemetery. Many members of his profession and some few literary friends were present. Mr. Phillip was born at Aberdeen on the 2nd of May, 1817, and had thus at the time of his death nearly completed his fiftieth year. His parents were in humble circumstances. He began life about the age of twelve as a painter's boy, and even in his boyhood his love for art showed itself strongly. Every hour of leisure he devoted to painting pictures. Mr. Pryce Gordon, an Aberdeen gentleman, was so much struck with some of these early efforts, that he brought the talents of the boy painter, Phillip, under the notice of the late Lord Panmure, who immediately took him most heartily by the hand; and, with the view of doing him all the good in his power, sent him to study in London under Mr. T. M. Joy. It was not, however, till after a visit to Spain—where he went in search of health—in the year 1851, that Phillip found his true field as a painter. His last pictures were his best. The English School has lost a great colourist.

WORKS OF ART FROM ROME.—Lately-published statistics of commerce in art inform us that, in the year 1866, the modern paintings exported from Rome represented the value of 138,841 scudi; modern sculptures, 311,387 scudi; ancient pictures, 7,305 scudi; and antique sculptures, 11,967 scudi; the total amount of such exports being 2,523,594 francs,—considerably above that reported for the preceding year.

PUBLIC HEALTH ACT.—This Act (11 and 12 Vict., c. 63), gives full compensation "to all persons sustaining any damage by reason of the exercise of any of the powers" of the Act. It was held by the Court of Common Pleas, in the case of Hall *v.* The Mayor and Corporation of Bristol, that this extends only to damage which would give a right of action if the works causing it were carried out without the authority of the statute.

PLAN OF THE CITY OF WORCESTER. — The Streets, Water, and Sewerage Committee have agreed to recommend for acceptance by the town council the tender of Mr. H. Webb, surveyor, of Foregate-street, for a map of the city, on a scale of 40 ft. to an inch, at a cost of 640*l.* The committee also ordered that there should be a constant supply of water to the city night and day. The new waterworks were reported as being in a satisfactory state of progress.

CRIPPLEGATE. — Amongst the improvements lately made in the City, is the removal of four old houses in Well-street, Cripplegate, and the erection on the site of an extensive warehouse, having a frontage of 90 ft., and an average depth of 35 ft. The height from paving to coping is 62 ft. There are seven floors in all, with staircase and lift at each end of the building communicating with each floor, and arrangements for supply of water, so that the the building may be used for manufacturing purposes or otherwise. Mr. W. Henshaw has carried out the works, under the superintendence of Mr. George Grayson, architect.

PHOTOGRAPHIC PROGRESS.—The well-known "ghost" process Professor Mack now proposes to apply to anatomical preparations in an ingenious way. Taking the skull, for instance, says *Galignani*, he photographs it stereographically on the photograph of the auricular apparatus, so that the whole interior of the ear is seen through the temporal bone. It is easy to conceive the immense advantages that may be derived from this system. Suppose it were required to show photographically the exact position of the heart and its immediate connexions in a given posture of the person, that part would then be photographed first from a model and the whole body over it. The latter would thus form a transparent outline showing the relative positions of the inner and outer parts. Might not the whole skeleton, too, be thus seen, clothed with its muscular and vascular systems? This would form a highly interesting sort of stereograph.

MR. RUSKIN ON "CO-OPERATION AND COMPETITION."—In a letter which has been printed Mr. Ruskin says on this subject:—"All mastership is not alike in principle. There are just and unjust masterships; and while, on the one hand, there can be no question but that co-operative partnership is better than unjust and tyrannous mastership, there is very great room for doubt whether it be better than a just and benignant mastership. At present you, every one of you, speak and act as if there were only one alternative, namely, between a system in which profits shall be divided in due proportion among all; and the present one, in which the workman is paid the least wages he will take, under the pressure of competition in the labour market. But an intermediate method is conceivable,—a method which appears to me more prudent, and in its ultimate results more just than the co-operative one. An arrangement may be supposed,—and I have good hope also may one day be effected,—by which every subordinate shall be paid sufficient and regular wages, according to his rank, by which due provision shall be made out of the profits of the business for sick and superannuated workers, and by which the master, being held responsible, as a minor king or governor, for the conduct as well as the comfort of all those under his rule, shall on that condition be permitted to retain to his own use the surplus profits of the business which the fact of his being its master may be assumed to prove that he has organized by superior intellect and energy."

EDINBURGH CO-OPERATIVE BUILDING COMPANY. The quarterly meeting of the shareholders of this company has been held. From the report it appeared that a number of houses have been sold during the past quarter at Leith. Sixteen houses in course of erection at Maryfield are nearly completed, and will be fit for occupation at Whit Sunday. The building of other six houses and a shop is being proceeded with at the same place. Twelve of these houses have been sold during the quarter. Since last general meeting of the company, fourteen houses have been sold at Stockbridge, where an additional block has also been commenced.

NEW TILE WORKS, BURSLEM.—The encaustic tile manufacture has recently taken another step in advance in the Potteries. Three or four years ago Messrs. Boulton & Worthington, of Burslem, took out a patent for the manufacture of inlaid encaustic tiles from powdered clay subjected to a great pressure. This patent was purchased by Messrs. Malkin & Co., who, in November last, commenced operations at works erected specially for the purpose at Newport, Burslem. The slip-house machinery is driven by an engine of twelve-horse power, and there are three kilns on which the slip is desiccated; after which it is ground to powder, and is then ready for the presses. Of these there are nine in all, some of which are used for making plain wall tiles and quarries, and others for ornamental tiles. The plain tiles are made in great numbers by means of unpatented presses. The stoves for drying the tiles are heated by steam pipes, and those set apart for the inlaid tiles are so arranged that the tiles are placed in on one side by the makers, and taken out on the other by the placers. From the produce of the first oven several pavements have been prepared for the Paris Exhibition. The designs at present produced are mostly Gothic in style.

THE SEWAGE QUESTION.—At a recent meeting in Liverpool Lord Robert Montagu delivered an address upon this question. His Lordship stated, that fifteen years ago he himself tried the utilization of sewage upon land, and so astonished was he with the results, that he then determined that if ever an opportunity offered he would do all in his power to urge the general utilization of sewage throughout the country. He spoke, therefore, from experience. After alluding to his well-known connexion with the Parliamentary Committee and bills on the subject of sewage, one of which, the Sewage Utilization Act, was passed in 1865, he went on to show, firstly, the absolute necessity of utilizing the sewage of towns; secondly, the enormous gain that might be expected to accrue from such a practice. After the address, Mr. J. F. Bateman, C.E., said the experiments made showed that where sewage had been utilized, the result had been a considerable improvement in the value of land. The work proposed to be tried in Liverpool was extremely simple. It was proposed merely to carry out a portion of the scheme, so as to enable the public to realise the fact that sewage could be utilized. The company formed in Liverpool intended to try 200 or 300 acres, or more, if necessary, at the north end of the town.

METROPOLITAN IMPROVEMENT RATE.—Mr. Ayrton's Bill, reciting that a portion of the charge for permanent improvements in the metropolis ought to be borne by the owners of rateable property therein, proposes to enact as follows:—That the Metropolitan Board of Works in assessing on the several parts of the metropolis the several sums to be charged thereon for defraying the expenses of the execution of the Metropolis Management Acts of 1855, 1856, and 1862, shall distinguish as being assessed for a special rate, to be called the "Metropolis Improvement Rate," such parts of those several sums as the Board from time to time shall think fit, not exceeding in any year 4d. in the pound on the rateable annual value of the property in the several parts of the metropolis. The rate is to be applied towards permanent improvements authorized by Parliament, or to which the City Commissioners of Sewers, or any vestry or district Board, contribute out of rates at their disposal at least half the cost. The rate is to be borne partly by the occupier and partly by the landlord, or the several landlords or lessors; the occupier is to deduct from his next payment of rent "for each pound thereof one half of the sum which he pays for the Metropolis Improvement Rate in respect of each pound of rateable value, whether the rent is greater or less than the rateable value."

A FEATURE OF THE STRIKES.—The strikes of men engaged in the iron works and colleries of the district traversed by the Midland Railway have cost the company 10,000*l.* in loss of traffic alone.

THE MAIDENHEAD SEWAGE.—In reply to a letter from the town clerk to the Thames Conservators requesting to be informed whether the filtered sewage water of the town would be allowed to pass into the Thames, the Board of Conservators decline to sanction it, and refer to the chemical character of the water passed from the Ealing sewage works as analyzed by their analytical officer of the Board, Dr. Letheby. The Local Board have, therefore, requested to be allowed to send to the Board a deputation on the following question:—"Suppose the filtering process is carried out to a greater extent than at Ealing, will the filtered sewage water then be allowed to enter the Thames?"

NEW BRIGHTON PIER.—An ordinary general meeting of the New Brighton Pier Company, which has been incorporated under a special Act of Parliament, at a nominal capital of 30,000*l.*, in 3,000 shares at 10*l.* each, has been held in Liverpool. The company are now erecting an iron pile-pier at New Brighton, on the Mersey, with a promenade and saloons, the profits to be derived from tolls for usage. Mr. E. Birch, of Westminster, is the engineer. The report submitted stated that the first column of the pier was fixed on the 19th of December last. One-half the foundations for the whole of the columns are already fixed, several columns erected, and girders and other materials on the spot. Mr. Birch constructed the similar pier at Brighton, in Sussex.

BARROW-IN-FURNESS.—A correspondent says: "A town of about 20,000 inhabitants, grown up from a village of scarcely one-tenth of that population in the short space of seven years, is a unicum in European geography. There have been instances before this of quickly-grown towns in some of the iron districts of England, such as Middlesborough-on-Tees or Merthyr Tydvil, but these precedents can hardly be compared, as regards rapidity and extent of rise, to the recently-commenced and still-continuing increase of Barrow-in-Furness. The appearance of this now important town has a striking peculiarity. Its streets of newly-built houses, and others in course of construction; its gangs of busy workmen engaged in building, erecting, and fitting up new structures of all kinds; the bustling noise, and the visible tendency which exists everywhere to progress with the utmost speed, bear some resemblance to the hasty preparations for some enormous fair or other extraordinary occasion."

THE GREAT WESTERN STATION AT READING.—The new down station is now approaching its completion. The site has been found very troublesome on account of its being once a valley, which it was necessary to fill up with ballast, in order to form a roadway to the old station—the depth being from the surface of the original bottom, 25 ft. 6 in. The station is in the Italian style, very freely treated, with very low wings, and a tower in the centre of the building. The exterior walls are of white bricks supplied by the Coalbrookdale Company's brickyard in Shropshire. A close joint has been obtained, and they have been set in fine putty, and left a ruled joint. The dressings are of Bath stone, selected from a bed known as the Lodgestyle Bed, on account of its durability. The centre portion of the building and under the verandah are entirely of Bath stone, with moulded and carved panels and wreaths over the windows and doors. The windows generally throughout the building are designed with carved trusses supporting the shelf terminating with pendants of running foliage. The carving has been carried out under the superintendence of Mr. Charles Allen, of Birmingham. The chimneys are of Bath stone. The total length of the building is 221 ft. 2 in., and it is 46 ft. broad, and comprises first and second class waiting-rooms, refreshment-rooms, with kitchen, scullery, &c.; booking, telegraph, parcels, inspectors' and engineers' offices, cloak-room, and superintendent's residence. It is proposed to approach the up-station by an underground passage. The plans were prepared from designs by Mr. Lane, the company's chief engineer, and have been carried out by Mr. H. Lovatt, of Wolverhampton, under the direction of Mr. H. Charlton. The clerk of the works was the company's local engineer, Mr. T. Blackall, of Reading.

RESTORATION OF WREXHAM CHURCH.—The scraping of the walls of the old church have brought to light over the chancel arch a large painting, which as far as it can be deciphered at present seems to be a picture of the Last Judgment. They have been directed to preserve it as perfect as possible, and some thoughts, according to the *Chester Courant*, are entertained of restoring it.

IMPROVEMENTS AT SANDRINGHAM.—During the absence of the Prince and Princess of Wales many improvements have been carried out on the Sandringham estate. The new model farm buildings, in which the Prince of Wales's prize and other stock will be fed, are progressing. They are situated on the Home Farm, at the back of the royal gardens, and comprise two yards, surrounded with feeding and fattening boxes, &c., the same principle being adopted in the ventilation as in the royal kennels. Seven additional labourers' cottages have just been completed, and are replete with every accommodation, the prince seeking to the utmost to discharge his duty towards the cottagers on the royal estate. The new wing of Sandringham House progresses, and will probably be ready for use by the autumn.

TENDERS

For the erection of two houses Nos. 24 and 30, Shepherd-street, May Fair. Mr. S. L. Moye, architect. Quantities supplied:—

Stoner	£1,857 0 0
Sapwell	1,794 0 0
Walton	1,582 0 0

For a pair of semi-detached residences at Fulham, for Mr. T. Cross:—

Stimpson	£1,510 0 0
Brass	1,480 0 0
Whittick	1,450 10 0
Richards	1,414 0 0
Wigmore (accepted)	1,299 10 0

For a pair of houses in the North-end-road, Fulham, for W. Kitchen:—

Amos	£896 0 0
Smith	800 0 0
Wilson	795 0 0
Wigmore (accepted)	750 0 0
Johnson	739 0 0
Ward	735 0 0

For building printing-office, Bartholomew-close, Mr. John Blythe, architect:—

Gillet & Wisbey	£3,300 0 0
Mansfield & Son	2,906 0 0
Patman & Co.	2,695 0 0
Myers	2,688 0 0
Piper & Wheeler	2,600 0 0
Sewell & Son	2,578 0 0
Webb & Sons	2,530 0 0
Brass	2,497 0 0
Pritchard	2,444 0 0

For house, Lime-street-square. Mr. Robert Walker, architect:—

Rodda	£3,200 0 0
Carter & Son	3,180 0 0
Sewell & Son	2,813 0 0
Turner	2,749 0 0
Kilby	2,683 0 0
Webb & Sons	2,598 0 0

For works at Enfield. Mr. T. J. Hill, architect:—

Webb & Sons (accepted)	£1,427 0 0

For wrought-iron fencing and hurdles for the Public Cricket Ground, Southampton, according to plans prepared by the borough surveyor, Mr. James Lemon:—

At per lineal yard.

	No. 1 Fence.	No. 2 Fence.	No. 1 Hurdle.	No. 2 Hurdle.	Quality of Iron.
	s. d.	s. d.	s. d.	s. d.	
Robinson	7 0	10 6	7 0	10 6	BBH Staffords.
Ingram & Phillips	6 0	6 9	6 11	8 9	" "
Godden	5 11½	7 1½	5 10	11 3½	" "
Hodgkinson	5 6	6 6	5 3½	10 3	" "
Greening & Co.	4 8	8 0	4 9½	8 1½	BB Kimberley's
Howell	4 5	6 0	5 0	5 6	BBH Staffords.
A. & S. Clayden	4 0	6 6	4 9	6 3	BBH Crown Staffordshire
Blatch	4 0	8 0	4 9	6 9	Newcastle
Page & Wilkinson	3 11	7 3	4 7	5 4	B Staffordshire
St. Pancras Co.	3 10	5 6	4 7	5 4½	No. 1 English
Hernulewies & Co.	3 6	5 8	4 4½	3 11	Equal to B B Staffordshire
Oliff & Borland	3 6	5 8	4 6	3 11	None stated
Matthews & Co.	3 4	8 0	4 1	6 5	Thorneycroft's TPK
Maclean	3 3	6 3	3 10	5 2	Thorneycroft's
Simpson & Co.	3 2	6 1	4 8½	5 9	Good Staffords.
Fletcher	3 1	6 1	3 8	5 0	Equal to Thorneycroft's
Morgan*	3 1	6 1	3 8*	5 0	BB Staffords.
Fry	3 1	5 5	4 3	5 2	B Crown Staff.
Hill & Smith*	3 0*	5 0	4 6	5 4	S. Staffordshire H Crown S

* Accepted.

For new vagrant wards and local offices, for the guardians of the West London Union. Mr. Lewis H. Isaacs, architect. Quantities supplied by Messrs. Arding & Bond:—

King & Son	£5,372	10	0
Browne & Robinson	5,084	0	0
Bamford	5,057	10	0
Patman & Fotheringham	4,997	0	0
Clemence	4,994	0	0
Simpson & Son	4,898	0	0
Hill & Keddell	4,540	0	0
Phillips (accepted)	4,497	16	9
Langmead & Co.	4,370	0	0

For veterinary hospital, Park-road, Liverpool, for the Road and Railway Omnibus Company, Limited. Mr. Thos. Cook, architect. Quantities supplied:—

Tomkinson	£1,303	0	0
Barker & Son	1,122	0	0
Westmorland	1,119	0	0
Wiley	1,087	0	0
Callie	1,070	5	0
Urmson (accepted)	1,039	0	0

For fixtures and fittings of new gaol, police-court, and offices, Wigan. Mr. Thos. Cook, architect. Quantities supplied:—

Burroughs & Son	£2,290	0	0
Anderson & Son	1,999	6	0
Preston	1,935	10	0
Urmson	1,819	0	0
Fairclough & Son (accepted)	1,798	0	0
Collin & Son	1,695	0	0
Bridge	1,550	0	0

For residence at Tufnell Park, for Mr. F. Morton. Mr. C. H. River, architect. Quantities supplied:

Tracey & Co.	£2,867	0	0
Foster	2,645	0	0
Wood	2,470	0	0
Macey	2,444	0	0
Warne & Co.	2,384	0	0
Jackson & Shaw	2,332	0	0
Manly & Rogers	2,172	0	0

TO CORRESPONDENTS.

Portland Cement.—A correspondent asks to be directed to some plain directions in print for the manufacture of Portland Cement.

H. M.—H. L.—C. J. P.—W. P.—W. B.—H. W. B.—F. R. C.—P. C.—F. C. P.—W. W. & Son.—G. T. C.—R. L. R.—H. F. L.—F. W.—J. W. R.—R. W. E.—A. F. P.—L. W. C.—M. W.—D. & Co.—G. H. H. J. L.—R. S.—C. H. D.—J. P.—J. M. H.—J. W.—R. C. & Son (let us see a view, and we will reply).—J. P. S. & F. B. (thanks).—Messrs. H. (we do not wish to engrave pillar sent. Thanks).—C. G. (thanks. Next week).—Messrs. L. J. (next week.—Subscriber (*re* Ashford, no).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 25, Old Bond-street, and 33 & 34, Ludgate-hill, E.C. Established 1749.

ADVERTISEMENTS.

TO LEARNED SOCIETIES, ARCHITECTS, and ANTIQUARIES.—Messrs. WYMAN & SONS, having had great experience in the production of every variety of Work relating to Archæology, Architecture, and the Fine Arts, their Establishment affords special facilities for the execution of this class of PRINTING, in the best possible manner with promptitude, and at moderate prices.—WYMAN & SONS, Fine-Art and Classical Printers, 74-75, Great Queen-street, London, W.C.

EAST-INDIA-ROAD.—Valuable Freehold Building Land (land-tax redeemed), having two important frontages, and occupying an area of about 14,400 square feet, most desirably situated in close proximity to the Poplar Station on the North London Railway; with possession.

MESSRS. WINSTANLEY & HORWOOD are instructed to offer FOR SALE by AUCTION, at the MART, Token-house-yard, on TUESDAY, 19th MARCH, at TWO o'clock precisely, a valuable FREEHOLD PROPERTY (land-tax redeemed), comprising an important plot of building land, together with the two dwelling-houses now erected thereon, and known as Nos. 1 and 2, Manor-cottages, most desirably situated at the corner of Kirbey-street, East-India-road, and nearly opposite the Poplar Station on the North London Railway, now in direct communication with New Broad-street. The property possesses a frontage of 73 feet to the East-India-road, and of 193 feet to Kerbey-street, and presents an unusually eligible site for an hotel or any other building requiring a prominent position, or it is available for the erection of dwelling-houses of a moderate class.—To be viewed. Printed particulars may be obtained of W. H. SWEPSTONE, Esq. Solicitor, Guardians' Offices, York-street West, Commercial-road East, E.; at the Place of Sale; and of Messrs. WINSTANLEY & HORWOOD, No. 10, Paternoster-row, St. Paul's.

HOMERTON.—Important Property (nearly equal in value to Freehold), occupying an area of about 59,000 square feet, and situated close to the proposed new Station at Homerton, on the North London Railway.

MESSRS. WINSTANLEY & HORWOOD are instructed by the Trustees under the will of the late Jas. De La Mare, Esq. to offer for SALE by AUCTION, at the MART, Tokenhouse-yard, on TUESDAY, MARCH 19, at TWO o'clock precisely, a highly-valuable PROPERTY, with possession, nearly equal to Freehold, being Copyhold of the Manor of Hackney, subject to fixed nominal fines on death or alienation, amounting to 1*l.* 4*s.* 8*d.* and to quit-rents of 1*s.* 3*d.* per annum; comprising a very eligible Plot of Ground, having a frontage to High-street, Homerton, and also possessing the advantage of an entrance in Church-road, thus presenting a most favourable opportunity for the erection of small tenements or model-lodging-houses, which are much in demand in this increasing locality, and would readily let at remunerative rentals. There is also a spacious Family Residence, with all necessary outbuildings, which, if desired, could be retained intact, with a portion of the garden, while the remainder would form an admirable site for a public institution or warehouses, without interfering with the comfort of the residence. The subsoil consists of gravel and sand of excellent quality, and in great abundance. The Property may be viewed by cards only, which, with printed particulars and plans, may be obtained of Messrs. WINSTANLEY & HORWOOD, 10, Paternoster-row, St. Paul's, E.C. Particulars also of Messrs. HOWARD, DOLLMAN, & LOWTHER, Solicitors, 141, Fenchurch-street, E.C.; and at the Place of Sale.

To Contractors, Builders, Brickmakers, Limeburners, Capitalists and Others.—Valuable Freehold Brickfield, having a large quantity of malm earth already prepared for next season's work, situate at Harefield, Middlesex, 4 miles from Uxbridge, possessing a considerable depth of superior brick earth, and a cliff with an unlimited supply of capital chalk, by the sale of which to the neighbouring brickfields a good profit is made; also a foreman's house, &c. &c. the whole occupying an area of about 27*a.* 0*r.* 31*p.*

MR. MARSH will SELL by AUCTION, at the GUILDHALL COFFEE-HOUSE, on THURSDAY, MARCH 14, at TWELVE (unless previously disposed of by private contract), in consequence of the ill-health of the acting partner, a valuable FREEHOLD BRICKFIELD, in full work, situate near the White Horse, Harefield. There is a convenient dock on one side of the estate, capable of holding numerous craft, and a tramway running nearly the entire length, for the purpose of rapidly loading chalk, flints, &c. into the boats; also lime-kilns, wash-mills, steam-engine and engine-house, canal-boats, cottages, stabling, sheds, and other buildings, the whole in thorough working order. The property would be let at a royalty, the machinery and plant being taken by valuation. The property also possesses an extensive frontage to the high road from Rickmansworth to Uxbridge, and offers valuable sites for building purposes. It is also expected that the branch line from Uxbridge to Rickmansworth will shortly be opened, and have a station near to the property.—May be viewed, and particulars of sale obtained at Mr. MARSH'S Offices, 3, Charlotte-row, Mansion House.

SURREY, on the borders of Berks.—The Bakeham Estate, offering remarkable attractions as a sound building speculation, with a moderate-sized residence; the whole (about 175 acres) disposed as a pleasure farm.

MESSRS. DANIEL SMITH, SON, & OAKLEY have been favoured with instructions to offer for SALE by AUCTION, at the AUCTION MART, Tokenhouse-yard, London, E.C. on TUESDAY, the 19th day of MARCH, at ONE o'clock precisely, in one Lot, the above very valuable and delightful PROPERTY, situated on Egham-hill, a neighbourhood proverbial for its salubrity and beauties of scenery, only 20 miles on the direct road from London, within 2 miles from the town and railway station of Egham, on the Staines and Wokingham line, and accessible from the London Waterloo Terminus within an hour. It is also within easy distances from Windsor, Ascot, Virginia Water, Staines, and other fashionable districts. The estate, with very trifling exceptions, is freehold, and comprises about 175 acres, approached from the town of Egham by the high road, to which, northwards, the most valuable portions abut, and present a bold, picturesque bank, nicely timbered, and of a gravelly soil, with southern aspect, offering choice sites for the erection of mansions, and commanding a magnificent range and unbroken expanse of scenery, extending eastward from the metropolis, and embracing a cheerful vale, with the Crystal Palace and the Epsom Downs in the distance, terminating westward with the bold feature of St. Ann's-hill, near Weybridge. The present residence is of an unpretending character, and occupies a charming site. It contains eight bed and dressing rooms, drawing-room, dining-room, morning-room, study, and domestic offices, with spacious verandah at the garden front, and a conservatory. In the rear are a complete set of farm premises, with convenient stock sheds, and at different points are various cottages. As an entirety, in addition to its attractions as a sound building speculation, it possesses all the features of a picturesque pleasure farm, and adjoins on nearly all sides Crown property, and though in the midst of a much frequented neighbourhood, is in full enjoyment of seclusion; the whole with immediate possession. N.B. If not sold in one lot at this sale, it will be offered in various lots during the ensuing summer.—Full printed particulars, with plans, may be obtained at the place of sale; of WILLIAM TINDAL PERKINS, Esq. Solicitor, 2, Gray's-inn-square, W.C.; of Messrs. ABBOTT, JENKINS, & ABBOTT, 8, New-inn, Strand, W.C.; of Messrs. COOKSON, WAINEWRIGHT, & CO. of 8, New-square, Lincoln's-inn, W.C.; and of Messrs. DANIEL SMITH, SON, & OAKLEY, Land Agents and Surveyors, 10, Waterloo-place, Pall-mall, S.W.

Building Land, near Grantham, Lincolnshire.

MESSRS. DANIEL SMITH, SON, & OAKLEY are authorised to SELL PORTIONS of a valuable PROPERTY, to the east of the town, well adapted in every way for the erection of good residences, on high ground, overlooking the various noblemen's and gentlemen's seats in this locality. About 50 acres have been already covered with good houses, at large cost, and the principal roads are laid out, being formed and metalled up to the existing buildings. The situation is remarkably picturesque and salubrious. Grantham is the centre of one of the best hunting districts in England, being accessible to the Duke of Rutland's, Cottesmore, Quorn, and Mr. Chaplin's hounds, and has a first-class station on the Great Northern Railway, the journey to London occupying only 2½ hours.—Plans of the property, showing its extent and situation, with the existing houses, may be seen at the Office of Mr. J. G. H. THOMPSON, Land Agent, Grantham; of Messrs. FARRER, OUVRY, & FARRER, Solicitors, 66, Lincoln's-inn-fields, London; and of Messrs. DANIEL SMITH, SON, & OAKLEY, Land Agents and Surveyors, No. 10, Waterloo-place, Pall-mall, S.W.

Valuable Freehold Ground-rents, in the parish of St. George-in-the-East, with the Reversion to extensive Freehold Property of a very large annual value; also Two Copyhold Houses at Poplar, and some Freehold Premises in George-yard, Holborn.—Preliminary Advertisement.

MESSRS. DANIEL SMITH, SON, & OAKLEY are instructed to prepare for SALE by AUCTION, at the NEW AUCTION MART, Tokenhouse-yard, E.C. in APRIL or MAY next, in various lots, valuable GROUND-RENTS, amounting to 658*l.* 15*s.* per annum, secured by twenty leases upon and arising from about 223 dwelling-houses of various sizes, including several public and beer houses, shops, stables, commercial premises, &c. all situate in the parish of St. George-in-the-East, and comprising the following streets (or parts of them), viz.:—Christian-street, which leads out of the Commercial-road, Ellen-street, Philip-street, Ellen-place, Mary Ann-street, Elizabeth-street, Elizabeth-place, Severn-street, Thomas-street, Spidt's-terrace, and the adjacent courts, together with the valuable reversions to the rack rental of the property at the expiration of the present leases, which have from twenty-five to thirty-five years to run; also Two Copyhold Houses, Nos. 35 and 36, High-street, Poplar, producing together 70*l.* per annum, and some freehold trade premises in George yard, Holborn; let on lease at a ground-rent.—A fuller advertisement will shortly appear, and meanwhile further information may be obtained of Messrs. JENNINGS, WHITE, & BUCKTON, Solicitors, No. 8, Whitehall-place, S.W.; of ANDREW WILSON, Esq. Surveyor, No. 7, East India-avenue, Leadenhall-street; and of Messrs. DANIEL SMITH, SON, & OAKLEY, Land Agents and Surveyors, 10, Waterloo-place, Pall-mall.

NEAR CITY-ROAD.

MR. ALFRED DAY has received instructions to SELL by AUCTION, upon the PREMISES, 12, Tabernacle-walk, Finsbury, on TUESDAY, MARCH 12, at TWELVE o'clock, without reserve, the valuable BUILDING MATERIALS of the above house and outbuildings; comprising panelled, rafters, joists, lead gutters, cisterns, flooring-boards, fittings, stoves, partitions, brickwork, sashes and frames, stone cills, coping, steps, paving, ironwork, and numerous other items.—May be viewed on Monday. Catalogues had on the Premises; and at the Auctioneer's Offices, 180, City-road.

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